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Energy Facility Siting Procedures, Criteria, and Public Participation in the Ohio River Basin Energy Study Region

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This report was prepared in support of the Ohio River Basin Energy Study (ORBES), a multidisciplinary policy research program supported by the Environmental Protection Agency. Findings are presented on the adequacy of current review procedures, criteria, and public participation in energy facility siting (EFS) for nuclear and coal-fired power plants. Case studies of EFS are presented in detail for three coal-fired power plants: East Bend (Kentucky), Killen (Ohio), and Mountaineer (West Virginia). Emphasis is placed on determining aspects of licensing procedures, siting criteria, and siting methodologies that influence the form and extent of public participation. Overall, the report concludes that there has been a lack of public involvement, especially both before and during the Draft Environmental Impact Statement (DEIS) phase.

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ENERGY FACILITY SITING PROCEDURES, CRITERIA, AND PUBLIC PARTICIPATION IN THE OHIO RIVER BASIN ENERGY STUDY REGION

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FOREWORD

The Ohio River Basin Energy Study (ORBES) is an interdisciplinary, multi-university inquiry into the environmental, economic, and social impacts of energy facility development in a major portion of the Ohio River Basin. The study was initiated by the U.S. Environmental Protection Agency in 1976 in response to a directive from the U.S. Senate Appropriations Committee.

Most of the ORBES research was conducted by a group of faculty members at the University of Illinois, Indiana University, the University of Kentucky, the University of Louisville, The Ohio State University, the University of Pittsburgh, Purdue University, and West Virginia University. In a few instances, the necessary expertise was found at other universities or independent research organizations.

This report is one of a series produced in support of the overall ORBES assessment. For a summary of the entire study, see Ohio River Basin Energy Study (ORBES): Main Report, by the ORBES Core Team, also being published by the U.S. Environmental Protection Agency.

ABSTRACT

Findings are presented on the adequacy of current review procedures, criteria, and public participation in energy facility siting (EFS) for nuclear and coal-fired power plants. Three case studies of EFS are presented in detail for coal-fired power plants. These are: East Bend (Kentucky), Killen (Ohio), and Mountaineer (West Virginia). Throughout the study, emphasis is placed on determining aspects of licensing procedures, siting criteria, and siting methodologies which influence the form and extent of public participation. Overall, the report concludes that there has been a lack of public involvement, especially both before and during the Draft Environmental Impact Statement (DEIS) phase. This stems largely from the sparsity of information provided to the public before the DEIS is published. The influence of the public on the final siting decision is further weakened by the normally short period of time (usually 45 days) allowed for DEIS review, and by the fact that considerable investment by the utility, including land purchase and site construction work, generally takes place before the DEIS is issued. Detailed discussion, critique, and recommendations are also given concerning how to improve the siting process. Among the key recommendations are that 1) public groups be involved in early site screening and selection (before application is made for any required permits), 2) that regional siting reports be made available both to the public and to permitting agencies, 3) that state Public Service Commissions (PSC's) be more uniform in the criteria used for application review, 4) that the criteria used by PSC's be made much more comprehensive, in order to include more of the public's concerns at an earlier stage in the site review process, and 5) that an experimental open planning process for EFS be initiated on a limited geographical scale in the Ohio River Basin by a resident utility.

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The authors wish to express their appreciation to the ORBES review committee assigned to this Special Study conducted under contract to ORBES. The committee members, composed of Boyd R. Keenan (University of Illinois at Chicago Circle), Harry Potter (Purdue University), and Vincent Cardi (West Virginia University) provided much useful comment on earlier drafts of the report, as did the Core Team of researchers and members of the Advisory Committee to ORBES. Dr. Keenan served as review committee chairman and must be especially acknowledged.

Innumerable persons contributed their time to answer questions posed by the authors during the case studies and review of criteria and procedures. All are gratefully acknowledged.

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Chapter 1. STUDY OVERVIEW

INTRODUCTION

The objective of this study has been to determine to what extent public participation is effective in influencing current energy facility siting (EFS) decisions in the Ohio River Basin Energy Study (ORBES) region. The research was conducted along three distinct but inter-related lines of investigation. First, current and historical licensing and review procedures and requirements governing nuclear and coal-fired power plants in the ORBES region where studied. Opportunities for public participation within these procedures were particularly noted. Second, criteria utilized by reviewing agencies and by utilities to select preferred sites for power plants were determined. This aspect of the research also called for a characterization of utility (or utility consultant) siting procedures. Third, intensive analysis of the role of public participation in three case studies (all coal-fired power plants) were undertaken. A less intensive analysis of three other case study plants (two nuclear and one coal-fired) was also made. This enabled observations to be made on the apparent role of public participation in EFS in the presence of a set of specific siting procedures, criteria, and external factors.

RESEARCH METHODOLOGY

The following brief description of research activities conducted in each of the above three areas may help to indicate the approach taken in the current research effort.

Licensing Procedures.

A detailed study was made of historical and current licensing procedures for nuclear and coal-fired power plants in the ORBES region.

Enabling legislation and codified agency licensing regulations and criteria were reviewed for the Corps of Engineers (COE), U.S. Environmental Protection Agency (USEPA), and the Nuclear Regulatory Commission (NRC).

Since environmental impact statements (EIS's) and other requirements of the National Environmental Policy Act (NEPA) play an important role in all EFS cases, an historical review of developments related to NEPA and power plant siting was undertaken. Also, in the EIS process, the lead Federal agency must comply with Federal legislative requirements to coordinate with certain other Federal agencies, as called for under such laws as the Archaeological and Historic Preservation Act (of 1974), National Historic Preservation Act (of 1966), Fish and Wildlife Coordination Act (of 1958), Endangered Species Act (of 1973), Land and Water Conservation Fund Act (of 1965), Wild and Scenic Rivers Act (of 1968), and the Coastal Zone Management Act (of 1972). These laws and the applicable regulations were reviewed to determine what influence they might have on siting procedures and criteria.

In the review of Federal procedures and criteria, special attention was given to statements concerning public participation requirements or guidelines. Of particular importance in this regard are certain Executive Orders (E.O.). Executive Order 11472 (May, 1969) establishing, among other things, the Citizens Advisory Committee on Environmental Quality, and E.O. 11991 (May 24, 1977) calling for the Council on Environmental Quality (CEQ) to promulgate regulations which, among other things, would enhance public participation in the NEPA process, are of particular importance. Also E.O. 11988 and 11990, and the associated Guidelines for floodplain management and wetlands protection, and the Unified National Program for Floodplain Management provide clear statements of administrative policy and specific requirements affecting public involvement.

Since state procedures heavily influence the siting process, a review was made of the current licensing procedures for state public service commission (PSCs) and state air and water permitting agencies, for each of the six states in the ORBES region.

Finally, a literature review was conducted wherein articles and reports dealing with EFS procedures of states and Federal agencies, and critiques of current procedures were sought. A large number of reports on nuclear power plant siting procedures were available, but only a few reports dealing with coal-fired power plants were found.

Siting Criteria.

To facilitate public influence on final site selection and plant design, site selection criteria should at least reflect the range of concerns held by the public. The relative importance of these criteria as determined by utilities, utility consultants, and lead Federal agencies will likewise affect the extent to which public input can influence final decisions. Finally, the procedural manner in which the siting criteria and importance judgments are applied in the siting process can influence the final result and determine the degree to which public participation is possible. Such procedural aspects are termed siting methodologies herein.

Utility and agency siting criteria, criteria priority assignment, and siting methodologies used in the ORBES region were determined through a variety of means. The following research efforts aimed at developing a picture of current siting criteria in the ORBES region:

1. EIS review. All currently available EISs for power plants in the ORBES region were reviewed for descriptions of the background regional siting studies used to identify the preferred and alternate sites proposed in the EIS. Siting procedures, criteria, and criteria importance levels were noted. Approximately 15 such EISs were reviewed.

2. Case study criteria. Six case studies were examined as described below. One aspect of these examinations was the utility siting process. Such review enabled greater insight into the subtleties of the siting criteria as applied in practice.

3. Utility and PSC interviews. Representatives of all six PSC's and four utilities in the ORBES region were interviewed with regard to siting criteria and the relative importance of the criteria for coal-fired power plants (nuclear plant siting criteria were determined from NRC sources as described below).

4. Literature review: siting criteria. A review was made of technical literature dealing with engineering and environmental siting criteria for both coal-fired and nuclear power plants.

5. Literature review: siting methodologies. A review was made of the state-of-the-art of siting methodologies as currently practiced, and as proposed by various sources.

6. Regional siting reports. A limited number of regional siting reports for the ORBES region were reviewed. Since such reports are considered confidential by the sponsoring utilities, it was not possible to obtain many of these. It should also be noted, however, that most power plants in the ORBES region never had formal siting reports associated with them.

7. Agency regulations. As discussed above, laws and agency regulations were reviewed for both procedural aspects as well as siting criteria. Certain Executive Orders were also relevant with regard to environmental criteria to be utilized.

Public Participation.

Literature reviews were conducted concerning accounts elsewhere of public participation in EFS. In addition, throughout the study an emphasis was placed on determining aspects of licensing procedures, siting criteria, and siting methodologies which might influence the form and extent of public participation. In order to examine more fully the influence of such items on the effectiveness of public participation, six case studies were selected for study by the ORBES Core Team researchers in collaboration with the authors. The major criteria for case study selection were the following:

1) one case study plant to be in each ORBES state (resulting in six planned case studies);
2) four case studies to be coal-fired plants, and two nuclear;
3) plants to be recent in time (post-1970 start of construction), and;
4) plants are to be those for which licensing decisions have been substantially finalized.

These and other minor selection criteria resulted in the following planned case studies:

1) Mountaineer plant, Mason County, West Virginia
2) East Bend plant, Boone County, Kentucky
3) Killen Station plant, Adams County, Ohio
4) Mansfield plant, Beaver County, Pennsylvania
5) La Salle County nuclear plant, La Salle County, Illinois
6) Marble Hill nuclear plant, Jefferson County, Indiana

For the first three case studies the following activities were conducted:

1) An average of 25 participants representing local (or displaced) residents, public interest groups, local government officials, state agencies or divisions, Federal agencies or divisions and the lead utility were interviewed;
2) Available transcripts from all public hearings were obtained or reviewed on-site;
3) The Final EIS (FEIS) was analyzed in depth;
4) Questionnaires were sent to the lead utility;
5) Newspaper accounts of events were obtained;
6) Available letters of communication sent between agencies, the public, and the utility were obtained; and
7) All relevant process steps were flowcharted.

The last three case studies listed above were planned to be studied in the same in-depth manner. However, unexpected difficulties encountered in obtaining pertinent data, along with time limitations, made it impossible for the research team to complete the case studies for the states of Illinois, Indiana, and Pennsylvania in the same depth of analysis as for the first three. For this reason the latter three plants are not described in this report. The latter were, however, studied in sufficient detail to discern the major process steps and to establish the level of public participation present. For example, interviews were held with public and agency representatives, and environmental impact statements were studied in detail.

Conclusions were drawn in each case study with regard to procedural and public participation aspects.

Chapter 2. CONCLUSIONS AND RECOMMENDATIONS

A summary of research findings is presented below. The findings are given in the approximate chronological order of the major events of the licensing process. Criteria-related findings are placed last, however, since these permeate the entire siting process.

> Evolution in EFS. A clear and consistent evolutionary process is present in EFS decision-making procedures, criteria, and public participation for both nuclear and coal-fired power plants.

A review of historical developments in procedures, criteria, and public participation aspects of the major energy facility licensing agencies at the Federal level reveals consistent trends in policies and procedures leading to a broadening of decision-making criteria and greater concern for public participation in the licensing decision. The trend is not as strong at the state level in the ORBES region, however. Also, the process is more advanced in concept by the Nuclear Regulatory Commission than it is for the U.S. Army Corps of Engineers or the U.S. Environmental Protection Agency. This is due primarily to the much more limited statutory responsibilities of the latter agencies in the energy area.

At the same time, many public participants in the EFS process express a strong opinion that their efforts have had little effect on decisions related to plant need, location and design. Primary reasons for this opinion are stated to be the lateness at which the public is made aware of the potential energy development or becomes involved in the process; the limited scope of decisions left open for resolution at that time; and other process deficiencies. These are discussed more at length below.

> Early siting. The most critical deficiency in current EFS procedures is the lack of public involvement in early site screening and selection.

The most common statement made by public participants is that once a site is chosen by a utility through its site screening and selection process, there is little that can be done to overturn this decision. In part this is due to the limited review of the siting decision conducted by most public service commissions in the ORBES region (see below). Once the PSC "certificate of necessity and convenience" is obtained, and often before, land or options are purchased, thus committing the utility financially to the site. Subsequent procedures are focused on the site, with only peripheral attention given to a very limited number of alternate sites (usually one or two) if any. Since the subsequent process also leads to further administrative and financial commitments to the preferred site, the outcome becomes more and more pre-determined.

Institutional gap. Since utilities and government regulators in the ORBES region do not appear to initiate public involvement in early site review, there is an institutional/procedural gap for conducting such reviews in the case of coal-fired plants, and a probable gap in the case of nuclear plants.

Since no lead Federal or regional energy agency exists in the case of coal-fired plants, there appears to be no focal point for regional siting studies which might directly involve the public in the ORBES region. In the case of nuclear power plants, NRC has initiated (1977) a process for early site review. One of the requirements for NRC review of any site, however, is that the site be produced through a comprehensive site survey by some party. Since such a survey is expensive, it is questionable whether any public group or set of groups will utilize this option. It is not clear at this writing how comprehensive such a survey must be, however, to qualify a site for consideration since little experience has been accumulated in this area by NRC.

Regional siting reports. Utility regional siting studies, if conducted at all, are not generally made available to the public during the licensing process, and are not usually made a part of the record of decision for later reference.

Such reports form an important part of the decision process and, if available, might lend considerable credibility to the utility's proposed site. In the absence of such reports, agencies have generally assumed, or at least do not question, that the studies have been conducted in a professional and public-oriented manner, yielding the best (preferred) site and the next best alternatives (alternate sites) from a public standpoint. Permit approval decisions are then limited to deciding whether the preferred site in the application is acceptable, and how best to mitigate environmental impacts at the site. There is no reason to believe however, that the best site has been selected from a public viewpoint, since the public is not involved in the regional siting study nor does it generally have access to the study document.

A definition of regulatory effectiveness recently adopted by the NRC includes the concept of decision making by all parties on the basis of a common data set available to all participants. Application of this definition could well include regional siting studies.

Adversarial proceedings. The current licensing process, by focusing on an "up or down" decision on a specific site, inevitably places the public in an adversarial position with respect to the lead agency and the utility.

Current practice provides little or no opportunity for effective suggestions from the public concerning better site locations or plant type, since permit applications are narrowly focused on, and heavily committed to, a preferred site and plant type. If public participation were allowed at a time when choices were still open, a condition could be reached wherein certain suggestions from the public might be adopted, and a spirit of common goals might prevail.

Long and costly hearings. The adversarial setting of current procedures encourages long, costly and formal adjudicatory hearings.

Lacking the means to participate in informal dialogue before the final decision stage, the primary alternative left open to the public is terminal objection on procedural and technical grounds. Current agency adjudicatory procedures lead to long and costly delays when this happens.

Formalized adjudicatory proceedings are a part of most permitting agency procedures. The NRC, USEPA, public service commissions, and some state air and water permitting agencies utilize these. The Corps of Engineers perhaps utilizes the least formal hearing procedures.

PSC differences. States in the ORBES region differ greatly in their requirements for PSC rulings on need for power and certificates of public convenience and necessity at the present time.

Some states (Indiana, Pennsylvania) do not require PSC determination of need or certificates of public convenience and necessity before a utility can begin construction of a power plant. Others (Kentucky, Ohio) require rather comprehensive and coordinated environmental reviews along with PSC determination of need. Still others (West Virginia, Illinois) consider environmental factors along with PSC determination of need, but do so in a less rigid procedural manner.

Such differences in procedures reflect broader underlying differences in political outlook among the six states. PSCs tend to reflect state politics quite strongly, probably due to the direct tie of such commissions to the Governor's office through the appointment mechanism. Also, differences among PSC procedures and criteria in the ORBES region reflect similar differences found among PSCs on the national scale.

Determination of need. The determination of need for power in all six ORBES states is generally restricted in scope.

As mentioned above, two states in the ORBES region do not require a PSC determination of need before a utility may begin construction of a power plant. For those states which do require such a determination, the scope of this review is sometimes quite limited. For example, generally only the need for power in the applicant utility's service area is considered. Also, in some states only the intrastate portion of the utility's service area is considered, with interstate portions not considered or given only secondary importance. The mitigation of need through power exchanges with other power pools is not generally considered by PSCs in ORBES states. Reduction of peak power requirements through peak load pricing is an alternative that is considered of high importance in only some ORBES states. In all cases the certificate of convenience and necessity, if required, is based on environmental tradeoffs at the proposed site or one or two alternative sites. Regional site evaluations are not conducted by PSCs.

Again, such a limited scope of review reflects the national situation very well, wherein PSCs generally give only limited review to the application for a determination on need for power.

Delegation of need for power. NRC, in a move designed to avoid duplicative review of the need for power, is considering the delegation of this determination to the states. If such delegation is promulgated by NRC, along with associated performance guidelines, it may substantially alter PSC procedures as discussed above.

The assumption by states of the need for power determination for the NRC is voluntary, yet the presence of national guidelines should have a significant impact on individual state procedures.

Separation of transmission line review. Transmission lines and power plants are generally considered and certificated separately by PSCs. Transmission line routes are not generally finalized for power plants until very late in the EIS review process.

At the time of PSC review of the energy facility, transmission line routes are not generally specified by the applicant utility. Since transmission lines have significant environmental impacts, these should be considered at the same time as plant site review. Absence of this information during the drafting of an EIS hinders proposal evaluation by those involved. Further, by separating integral components of energy facility developments, people who will be affected by the lines do not have adequate opportunities to become involved at an early stage in total project planning.

Long EIS phase. For a number of reasons, the DEIS and FEIS phases of the EFS process have been very long for many power plants in the ORBES region.

The total length of time between official permit application to the lead agency and issuance of the FEIS has often taken from two to three-and-one-half years, even in the absence of major controversy. Such a long period of time is usually undesirable from the point of of view of all parties. Causes of this long time-period are not easily identified, but appear to be one or a combination of the following: 1) lack of strong lead agency coordination or timely arbitration of difficulties which arise, 2) changing permit criteria, 3) lack of urgency on the part of the utility for a decision, caused by the recent (post-1973) downturn in electricity demand projections, and 4) misplaced attention to unimportant details in preparation of the EIS.

Lack of public involvement in DEIS phase. Public input to the decision (licensing) process during the draft EIS phase has been accepted, but not promoted, by lead agencies and utilities. This has led to very late and ineffective public involvement (in the post-DEIS phase), with consequent ill-will engendered among public groups.

Despite the generally long period of time which characterizes the DEIS phase, utilities and lead agencies have not actively sought public input during this time. Concurrently, large financial commitments (administrative, design, land, and other costs) are incurred during this time period (see below) which reduces the utility and lead agency's receptivity to project design changes which might be suggested after publishing the draft EIS.

Also, such late involvement, concentrated in a very short period of time (less than two months) after publishing the draft EIS, results in unpleasant urgency of review by public groups, a feeling that a final decision has already been made on the project without their input, and consequent mistrust of the lead agency and utility.

Recent EIS guidelines, as published by the Council on Environmental Quality, should serve to alleviate some of this problem through use of a "scoping process." Thereunder, public meetings are suggested to be held immediately after a permit application has been received and a determination made by the lead agency that an EIS is called for. The purpose of these meetings is to determine priority issues to be addressed during the draft EIS phase.

If interest and participation in such meetings and subsequent discussion are not promoted by the lead agency, however, the scoping process may not be very successful. This may be particularly true since in the past the public has not generally been well aware of the power plant project or its possible impacts at this stage of the licensing process (see below).

Lack of information during DEIS phase. Information on the probable impacts of individual power plants has generally not been made available to public interest groups or local residents until the DEIS is published. This lack of information creates apprehension among both groups, but particularly among local residents.

In the absence of findings from professional studies, public interest groups and, particularly, local residents generally assume the worst, thereby in most cases becoming unduly apprehensive. This situation exists despite the fact that many professional studies and findings do exist before or very early in the DEIS phase, as a part of the utility's environmental report to the lead agency.

Although it is not certain that an information transfer program would reduce the total level of apprehension, it should serve to reduce the most exaggerated individual cases, and would go far in addressing the problem discussed above concerning ill-will engendered by late public involvement and information.

Inadequate information transfer. When the DEIS is issued, a combination of its length and the short period of time (45 days) allowed for its review acts to hinder public involvement.

The DEIS is too massive and inaccessible for most citizens to read, especially given only the official 45-day period for review and comment. If condensed, or summary versions (less than 10 pages long) of the DEIS were available and distributed to interested parties, local citizens and officials would much more likely be able to participate knowledgeably in the EFS process. Capsulized reports on individual topics would also be useful throughout the DEIS phase, as specialized studies are completed.

It should be noted that the new NEPA regulations issued by CEQ require that in most cases the EIS be shorter than 150 pages, and serve more as a decision document and less a depository for all possible data related to a project.

'Limited' site work. Extensive site preparation, the first stage in construction of coal-fired power plants, often begins before issuance of a draft environmental impact statement by the lead agency. Though legal, this action 1) often destroys significant environmental amenities at the site, 2) applies unnecessary pressure on licensing agencies for positive rulings, and 3) promotes a climate of scepticism and resentment in the public participation process.

Though such site work is termed 'limited' by utilities and lead agencies, it has a profoundly negative impact on local citizenry and public participatory groups. In part, this action results from the extremely long period of time to draft an EIS on the part of the lead agency (see above), however, under any reasonable time period for such drafting, economic pressure will still likely exist to begin construction as early as possible. From the standpoint of meaningful public participation, such construction should not take place.

In the case of nuclear power plants, limited work authorizations (LWA's) have been awarded by NRC, but only after a study has been made which is essentially equivalent to a draft EIS concerning site suitability (from environmental and safety standpoints). Even under this more reasoned approach, such practice has been called into question by NRC itself, since it leads to undue financial risks on the part of the utility and causes significant pressure on NRC for positive final determinations on construction permit issuance.

Time-conditioned permits. State regulations requiring construction to begin within one year (or some other arbitrary time period) after permit issuance, places unnecessary pressures on utilities during the licensing process for coal-fired power plants.

Once obtained, such a permit applies pressure on the utility to begin construction before other permit decisions or environmental reviews are made. On the other hand, the same restriction naturally leads the utility to delay application for such conditioned permits. This increases the degree of uncertainty that the utility must bear in the licensing process since the outcome of any future permit application always involves some doubt, and permit criteria frequently change.

Careful review of such conditions should be made in the context of power plant siting, especially considering the long licensing process common to such facilities.

Duplicative review. Closely duplicative review of air pollution aspects of coal-fired power plants occur at the state and Federal levels.

State agency air divisions issue construction permits based on a plant's effect relative to ambient air standards and State Implementation Plans (SIP's). This involves air pollution modeling. USEPA issues a construction permit based upon Prevention of Significant Deterioration (PSD). This determination also involves the same air pollution models, and essentially duplicates the state study. None of the states in the ORBES region have met the criteria necessary to assume the PSD permit program from USEPA, however. This contrasts markedly with the water quality regulatory review, wherein all states in the ORBES region except Kentucky and West Virginia have been granted authority for NPDES review.

Monitoring plant impacts. Monitoring environmental impacts of coal-fired power plants to insure conformance with statements in the FEIS would benefit both the utilities as well as the public.

In the case of coal-fired power plants, insufficient monitoring and enforcement procedures exist to ensure that actual plant design and operation conform to the generalized statements made in environmental impact statements. No one organization is responsible for such monitoring and enforcement as is the case of a nuclear power plant (NRC). Certain parameters of air and water quality are measured after the plant is in operation, while other factors such as landscape design, and long-term biotic (aquatic and terrestrial), aesthetic, social, and land-use impacts are not.

Such monitoring would provide a solid basis for utilities to write EIS's, thus reducing the case-by-case research effort needed for an EIS, and would ensure more predictable environmental impacts. Public opposition to power plants on the basis of doubt about impacts predicted, would be reduced. All parties would benefit from this.

Development of "environmental technical specifications" for coal-fired power plants, modeled after those developed for nuclear power plants by NRC, would aid in this monitoring effort.

Generic review. Certain issues are repeatedly raised during the licensing process in various forums. These could be more effectively handled in generic public hearings on a regional or even national basis.

Energy conservation, peak load pricing, rate structure reform, loss of agricultural land, fuel type, and other generalized issues could be effectively dealt with if investigated and adjudicated as individual topics. Findings could then be applied to specific cases as deemed appropriate. Neither the public nor utilities are well served by the current process of raising these issues for debate *de novo* in each plant case. The administrative agency responsible for plant review is reluctant to take firm action since it views such debates as far beyond its sphere of expertise and competence. Public interest groups are therefore not satisfied. The utility, meanwhile, suffers by any delays caused by such limited investigations, and receives no considered guidance on the subject, as it might in a more concentrated review.

This problem may be relieved somewhat by the new NEPA regulations calling for 'tiering' of impact statements whenever appropriate to do so. Under the concept of tiering, generic environmental impact statements would be written on National issues (e.g., electrical energy conservation), and site specific EIS's would then merely refer to the conclusions made in the more general document as a basis for the alternative proposed.

Legislated/regulated criteria. Lack of national and state policies inhibits generic review and hampers decision-making in the siting process for both nuclear and coal-fired power plants.

There are recurring trade-offs to be made in the site selection and approval process for which no national or state policy statement exists: Examples are fuel alternatives, energy conservation, agricultural production, and land use. Lacking a national or state initiative, generic reviews are made more difficult. Legislation or regulations are needed at both the state and Federal level in this regard.

NRC reform proposals. Certain of the proposals for regulatory reform recently made by the NRC directly relate to the improvement of public participation aspects of EFS, and would lead to more responsive and representative decision making.

Such measures as early site review, generic environmental impact statements (through rulemaking), a greater coordination between all levels of government in EFS, delegation of certain authority to states, and other initiatives are all in various stages of implementation by NRC. Each of these has been discussed above in the context of coal-fired plants, as well. NRC, however, is in a much stronger position to implement these actions than any agency in the coal-fired power plant arena. NRC could provide needed Federal leadership in developing meaningful EFS procedural reform.

Changing criteria. Frequent changes in environmental laws, ambient pollution standards, and required pollution control technology have destabilized utility planning and the licensing process.

From 1969 to the present, there has not been a period of three years (approximate length of the licensing process for coal-fired plants) wherein one or more major changes have not occurred in either licensing procedures or criteria. Air and water pollution standards, control technologies, EIS preparation procedures, EIS content requirements, emphasis on flood-plain management and wetlands protection, and other requirements, have all changed in this period. Overlaid on these changes have been new requirements for increased public involvement in decision-making. Currently, new regulations on hazardous wastes and the increased importance of long-range transport of air pollutants must be considered. Procedures should be implemented which remove this source of uncertainty in the planning process.

Restrictive siting methodologies. Certain siting methodologies used by utilities and consultants in the ORBES region are not well suited from a public involvement standpoint.

Most power plant sites in the ORBES region have been selected principally on the basis of engineering features (capital and operating costs, transportation access, fuel source, system reliability, water availability, seismic characteristics, geology, etc.). A limited number of candidate areas meeting certain arbitrary criteria related to these engineering features survive a first-stage screening process. Such features as socioeconomic, environmental, aesthetic, and land-use impacts are considered at a second screening phase.

The use of arbitrary engineering cut-off criteria in the first phase denies the opportunity for meaningful trade-offs among all siting criteria by the public.

Open siting methodologies. Siting methodologies exist which would enhance the effectiveness of public participation in the site selection process.

There are a large number of siting methodologies which seem to be appropriate for public involvement in the siting process. These fall under the general categories of ranking and weighting methods, and are particularly useful if applied in the context of an open planning process wherein participants may revise their weighting functions based upon an open discussion of all site selection criteria and concerns.

Experimental open planning. There is a need in the ORBES region for an experimental open planning process for EFS, initially applied on a limited geographical scale.

There has been no experience with an open planning process approach to EFS in the ORBES region. It may be very useful at this stage to undertake one or more such studies on a limited geographical scale, such as a utility service area. If successful, the experiment may establish a climate within which open planning on a more complex geographical and institutional scale may be initiated, or it may serve to encourage utilities in other service areas to undertake a similar approach.

Chapter 3. EAST BEND CASE STUDY: KENTUCKY

INTRODUCTION*

The East Bend Generating Station site is located on the Ohio River 511 miles downstream of Pittsburgh, Pennsylvania, and 24 air miles southwest of Cincinnati, Ohio near the small community of Rabbit Hash in western Boone County, Kentucky. Although Boone County is experiencing rapid growth as a whole, the area surrounding the plant site remains rural, sparsely populated, and is of rugged terrain. Most of the land in this area which is level enough is used for farming, with the most important areas being the rich bottomlands along the Ohio River. The East Bend site was such an agricultural area.

The plant is jointly owned by the Cincinnati Gas and Electric Company (CG&E), which is responsible for construction and licensing, and the Dayton Power and Light Company (DP&L). CG&E holds 51 percent ownership and DP&L 49 percent. Four units, with a total generating capacity of at least 2400 MW are presently planned, two of which are currently under construction. Units 1 and 2, which are expected to cost at least $630 million when they are completed in 1984 and 1981 respectively, are the only components of the development considered in the environmental analysis of the site. The cost of Units 1 and 2 represents more than Boone County's total 1974 assessed value for real, tangible and intangible property.

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* Abbreviations for parties named in this case study are defined where first noted, and are summarized on page 48.

The East Bend station will be coal-fired, with the fuel shipped to the site by Ohio River barges. Make-up water will be drawn from the Ohio River to replace that lost in evaporation from the cooling towers and in the wet lime scrubber for sulfur dioxide removal from the gas stream. The rest of the water will be used to transport bottom ash and other wastes to a pond where solids will settle out to allow the water discharged to meet effluent standards. Fly ash will be removed from the gas stream with an electrostatic precipitator and will be combined with the sludge from SO_2 removal for stabilization. This will be compacted and stored on-site, forming a large terraced hill.

PROCEDURES

Site Selection.

In October, 1971, CG&E authorized a consultant, Commonwealth Associates, Inc. (CAI), to locate suitable sites for a 2400 MW fossil-fueled or nuclear generating facility in or near their service region. From a total of 81 sites located in an initial topographic map search based on land characteristics, fuel access and water supply, 55 were judged "obviously unsuitable." Air reconnaissance eliminated two more sites. Information was gathered on the remaining 24 sites and presented in CAI's preliminary report R-1429 of April, 1972. No final determination could be made, however, due to a lack of information on fuel supply, air pollution control equipment, transmission lines, etc. CG&E then appointed a four-person committee to preferentially pick 4-5 sites based on CAI's findings, giving special emphasis to fuel flexibility and physical characteristics. Because of this, the four sites which were given serious consideration were all Ohio River sites. Additional on-site inspections by the CG&E

committee in the Fall of 1972 confirmed their decision that the East Bend site was superior.

Land Acquisition.

In January, 1973, two property owners in the East Bend reported to the Kentucky Post that an option to buy their land had been purchased by M. Gene Snyder, the U.S. Representative for their district, who, it was later learned, was acting as a real estate agent for CG&E. A reporter for the Post learned that the Congressman informed the owners that they would be faced with condemnation suits if they did not sell. Court-produced settlements, Snyder added, would give the owners less for their land than he was offering. He obtained four options on a total of 725 acres at this time. One owner, however, later refused to sell at the option price, claiming sand and gravel under his land increased its value. CG&E eventually won a condemnation suit against him, but at a higher price than originally offered, contrary to Rep. Snyder's claims. Later, six more options were obtained in the East Bend, causing concern among some local residents about the loss of that large a quantity of prime farmland. Presently, 1777 acres at the site are owned by CG&E, most of which were purchased during 1974.

Certificate of Convenience & Necessity.

Plans for East Bend Station were announced in a News Release from CG&E which was reported in the Kentucky Post on October 11, 1973. This stated that one 600 MW generating unit would be built at a cost of $213 million, and that an application for a Certificate of Convenience and Necessity reflecting this would be submitted to the Kentucky Public Service Commission (PSC). On October 31 this application was received and the review process for Case No. 5907 began. The PSC's review included a public hearing held at their office in Frankfort on November 21, with William Dickhoner, the president of CG&E, Bill Grieme, the president of the Northern Kentucky Chamber of Commerce, and Judge Bruce Ferguson of the Boone County Fiscal Court, all testifying in support of the project. There was no reported public opposition at this hearing. The desired certification for Unit 2, the first unit to be built, was granted on December 10, 1973.

Kentucky Air Permits.

The granting of permission to contruct a power plant by the PSC is contingent on obtaining necessary construction permits from the Kentucky Department of Natural Resources and Environmental Protection (DNREP). One of these is a permit from the Division of Air Pollution Control to construct an air contaminant source. CG&E applied for such a permit on July 31, 1974. The state reviewed modeling results obtained by Enviroplan, Inc., CG&E's consultant on this matter, to see if emission limitations and ambient air quality standards of the state would be met. A preliminary determination of compliance with these standards was made by the Division. In order to allow the public to review this action, a public hearing, requested by the Tri-State Air Committee (TAC) in October, 1973, was announced in a Public Notice in the Kentucky Post, and held in the Boone County Courthouse on July 23, 1975. Less than two dozen people attended, and the testimony presented did not convince state officials to change their determination. Permit No. C-75-75 was issued November 21, 1975, allowing the construction of Unit 2.

Due to time constraints on the validity of the construction permit, action on Unit 1, which wouldn't be needed until two years after Unit 2, was not begun until September 8, 1977, when an application was submitted. In the time since Unit 2 was permitted, however, the 3-hour PSD increment was tightened by the Clean Air Act Amendments of August 7, 1977, requiring that an effluent limitation on SO_2 below the NSPS be established on Unit 1 to insure that Units 1 & 2 combined would meet PSD. State officials modeled the dispersion of pollutants to see if air quality standards would also be met. Based on the results, preliminary approval to construct Unit 1 was granted. This was announced in a Public Notice appearing in the Kentucky Post on June 28, 1978. In the following 30 day period for public comment, only Federal and Indiana air pollution officials responded. Permit No. C-78-51 authorizing construction of Unit 1 was issued August 25, 1978.

Kentucky Water Permits.

Two State DNREP permits concerning water and wastewater were also required before construction could begin. One, from the Division of Water Quality, had to be obtained before construction of an ash basin and a sanitary sewage treatment plant could be started. An application for this permit accompanied the one for the first air permit. The Kentucky DNREP public hearing was jointly held by both divisions, but no water-related issues arose. Based on a review of material submitted by CG&E, Kentucky officials determined that the plant would have no difficulty meeting state water quality standards, and thus granted a permit to construct industrial and sanitary waste treatment facilities on July 30, 1975. Construction of the sanitary system did not begin within a year as required, and a new permit was issued August 4, 1976 for this facility.

The other required action involves the Division of Water Resources, which must insure that water intake, outfall, and other structures to be built would not change the characteristics of the river enough to raise the flood stage during high volumes of flow. Proof of this results in a Permit to Construct in a Floodway. CG&E applied for this January 3, 1975 and provided additional requested information on January 17. Upon the receipt of this information the Division had 20 working days to model the situation using the HEC-2 program of the COE and, based on the results, decide whether to give the project approval. No problems were found in this analysis and Permit No. 1090 was issued January 27. On March 25, 1979, plans for additional sludge ponds (required for an NPDES permit) were received, but no decision on the need to permit these has been made at this writing.

USEPA PSD Determination.

To determine whether the PSD increment could be met by East Bend Station, the Air Programs Branch of USEPA undertook their own modeling study of the expected pollutant concentrations. Their model used somewhat different assumptions than those on which Enviroplan's model was based, but both gave similar results. Thus, when CG&E submitted a complete application for a PSD determination on June 4, 1976, USEPA was ready to issue their "Preconstruction Review and Preliminary Determination for East Bend Units 1 & 2" on June 8, which stated that conditional approval could be given based on PSD regulations. This decision was announced in a public notice, appearing on July 1, 1976 in the Kentucky Post and Boone County Recorder. In the 30 day period for comment following this, only CG&E and the Tri-State Air Committee (TAC) responded. Based on a final determination dated September 1, 1976, which basically upheld the June 8 decision, USEPA gave "Authority to Construct a Stationary Source" on November 24, 1976. Because of the change in the PSD increments mentioned previously, this authority had to be revised. CG&E was informed of this by USEPA on September 27, 1977, provided USEPA with additional information on March 9, 1978, and received the revised "Authority" on June 20, 1978.

USEPA NPDES Permit.

An agreement on the NPDES permit has yet to be reached at this writing, even though discussions between USEPA (Atlanta) and CG&E on the requirements of the permit began on February 4, 1975 and a permit application was received January 21, 1976. There are several reasons for this. Initially, the Water Enforcement Branch of USEPA, (Atlanta), which is responsible for the NPDES determination was apparently left out of coordination efforts between the USEPA (Atlanta) and the Corps of Engineers (COE) on the Draft Environmental Impact Statement (DEIS) preparation. Because of this, they were aware of the DEIS's impending release, but did not learn of it until after the fact. Also, they did not know of the DEIS public hearing until one week beforehand. This kept them from operating under their normal procedures of readying a Draft NPDES permit for placement in the DEIS and soliciting public comment on the permit at the same time comments are sought on the DEIS. Therefore, the single forum for public comment on all Federal environmental actions, which USEPA desires, was not available in this case.

In addition to these timing delays, disagreements over the details of the NPDES permit also slowed the process. USEPA felt that the system they suggested would reduce water use and allow for a higher degree of treatment in the future, while CG&E defended their designs as the least environmentally damaging and the least costly. A settlement was apparently reached only after an exchange of comments on the DEIS, several meetings in Atlanta and Washington, and the inclusion of a statement by USEPA in the Final Environmental Impact Statement (FEIS) which said that although a Draft NPDES permit was provided for inclusion in the FEIS, it was by no means final. The NPDES permit was expected to be issued before October, 1979.

Memorandum of Agreement on Historic Resources.

Two historically significant areas were found on the East Bend site. The one which generated the most interest was Winnfield Cottage, an early 19th century river house built by one of the first settlers of the area. When plans were announced for the East Bend Station, several concerned citizens recognized the importance of the house and initiated a request for its placement on the National Register of Historic Places. In July, 1974, such registration was achieved. At this time, CG&E was quoted as saying that they would place a fence around the house to protect it. Later, however, CG&E decided that the cottage would interfere with their development plans, and saw no way that the house could remain where it was. They failed, though, to directly state this to those interested in preserving the house, represented by Judge Ferguson, the Kentucky Heritage Commission (KHC), and the President's Advisory Council on Historic Preservation (PAC), in several meetings and letters between these parties early in 1975. CG&E had always maintained that they preferred the cottage's demolition and felt that a power plant and an historic structure were incompatible, but appeared at first to be open to compromise. The KHC, which was charged with drafting a Memorandum of Agreement on the cottage, incorrectly believed that CG&E would set aside land around the cottage based on the conditions of the preservation plan the KHC supported, and thus did not rush to formally document the agreement. On September 16, however, CG&E asked the COE to have the PAC approve the demolition of the cottage, which the PAC refused to do, instead asking the COE to resolve the conflict. The COE took no action and the fate of the cottage remained in doubt until it was announced in February, 1976 that site preparation at East Bend was to begin. Reaction was swift. The PAC proposed a plan which, by the end of the month, was almost totally accepted by all parties. This plan included most elements of the accepted Memorandum of Agreement, signed in May, 1976. It called for CG&E to erect a fence around the cottage, which was done in March, over one-and-one-half years after CG&E had first proposed to do so. Preservationists were given two years to relocate the house before CG&E would be allowed to demolish it. By the time of the agreement, however, there was little left to preserve. Vandals had removed almost everything of value from the cottage, principally during the winter of 1975-1976. Because of this, the impetus to preserve the cottage was lost. Winnfield Cottage was demolished during 1978.

More success was found in efforts to preserve the other historic resource, two archaeological discoveries, one of which was potentially the richest recorded find in Kentucky based on the amount of chipped stone recovered during CAI's archaeological testing of May, 1975. The Kentucky State Archaeologist was especially interested in this, and negotiated an agreement with CG&E which would prevent these sites from being disturbed. He stated that the announcement of the beginning of site preparation, however, surprised him, since a formal agreement was not signed and it appeared construction workers knew nothing of the sites. This was quickly resolved, however, and the agreement on these archaeological sites was included in the Memorandum of Agreement.

COE DA Permit and EIS Preparation.

Under the National Environmental Policy Act, any Federal permit action on a project which would have a major impact on the environment must satisfy the requirements of the National Environmental Policy Act (NEPA). In the East Bend case, this responsibility was assumed by the COE under their authority for granting Department of the Army (DA) permits. The first contact between the COE and CG&E occurred on January 3, 1974. During 1974, CAI was selected as a third-party consultant to perform the required environmental studies. This decision was subject to review by Federal and State agencies and environmental groups contacted by the COE. Even before this review was final, however, CAI began the required studies, an action taken at CG&E's own peril, and aimed at minimizing the effect of possible delays in arriving at an FEIS. Meetings throughout 1975 and the first half of 1976 between the three parties were held to coordinate the studies, review the findings, and summarize the findings and their implications in a DEIS. The most important meeting occurred January 22, 1975 when it was decided how the most sensitive problem areas would be mitigated. It was hoped this would reduce opposition to the plant when public involvement begain in earnest, predicted to occur at the time of the DEIS public hearing.

The DEIS was sent to the Council on Environmental Quality (CEQ) on May 21, 1976. This was noted in the Federal Register on June 7 and in a COE Public Notice on June 8. The public review process for the DEIS and the DA Permit included a 45-day period for written comments, and a Public Hearing, held in Burlington, Kentucky, on July 8. The hearing was attended by an estimated 250 people. Twenty-five people testified, 17 opposed and 9 in favor. Forty written comments were received by the COE, 17 from government agencies, 12 from interest groups, and 11 from individual local citizens. Direct comments to the DEIS were answered in the FEIS, and others were reviewed by the COE in making their determination.

The revision of the DEIS for the FEIS took nearly a year. Again this was performed and reviewed by the three parties; CG&E, CAI, and the COE, with ultimate authority resting with the COE. Based on the comments received, additional or revised information was included on transmission lines, migratory waterfowl, a Spring biological survey, growth projections, and water use and treatment systems. After a review by higher COE authorities, the FEIS was sent to the CEQ on June 17, 1977. This was noted in the Federal Register on June 24, and in a COE Public Notice on June 29.

In the meantime, the DA permit which required the EIS was being prepared. CG&E first applied for this on July 9, 1974, but was informed that the facility covered by the permit must be more completely planned for the application to be accepted. The formal permit application for the water intake and discharge facilities, coal unloading facility, and barge dock was made January 21, 1976 and revised March 14, 1977. No final decision on whether to grant this permit could occur until the public interest review required by NEPA culminated with the 30 day comment period on the FEIS, which ended July 25, 1977. Only eight minor comments were received, and on August 5, 1977, the DA permit was granted. This was not the end of the COE's involvement, however, since in February, 1978, talks began on the procedures for obtaining a permit for Units 3 and 4.

CRITERIA

Several criteria which CG&E used for siting the East Bend plant are given in the FEIS. These are:

Engineering Constraints

1. Topography
2. Condenser cooling system
3. Makeup water
4. Geology
5. Access
6. Flood protection

Environmental Constraints
1. Scenic impairment
2. Air pollution
3. Water pollution
4. Water depletion
5. Land use
6. Population displacement

Economic Constraints
1. Property acquisition costs
2. Plant construction costs
3. Operational expenses
4. Fuel expenses
5. Transmission expenses

Basic engineering constraints were met by each candidate site. Of those listed, it appears that the make-up water requirement was the most important reason for selecting the alternative sites along the Ohio River which were given serious consideration by CG&E. An important engineering reason for choosing East Bend over the other sites, however, may have been its higher elevation above the river, which afforded greater flood protection.

Environmentally, no primary alternative site appeared greatly superior. Pollution was not a constraint at any of these sites as long as the proposed control equipment was used. Each site would produce similar aesthetic impacts, and the land use and demographic patterns in these regions were virtually identical. Based on CG&E's comments at the DEIS public hearing, however, the last of these criteria was given precedence when the alternative sites were chosen. A site was desired in a sparsely populated area, said CG&E, to minimize the population impacted. Critics of the plant, however, including residents of the East Bend area, felt that a sparsely populated area was chosen to minimize opposition to the plant from local residents.

Plant construction and operation costs didn't seem to be a major variable among the sites considered. Fuel expenses were minimized by an Ohio River site. Property acquisition costs, however, were cited as the major distinction between the East Bend site and the second-rated site at Steele's Bottom, a few miles downstream. Tobacco grown at Steele's Bottom, it was felt, would increase the acqusition costs, thus East Bend was chosen.

PUBLIC PARTICIPATION

Early State Public Hearings.

Several possible forums for public participation have been mentioned. The first of these was the PSC hearing, which drew very little participation. Plans for the plant were given considerable press coverage at this time, but the hearing itself does not appear to be mentioned in these stories until after it occurred. The fact that it was held in Frankfort probably served to limit the number of people who could attend. The one major interest group active at this time, the TAC, didn't participate because the issues to be discussed were not in their field of expertise, air pollution. Therefore, they requested another meeting where these concerns could be discussed. This was the Kentucky DNREP hearing, announced in the public notice as an "informational meeting," which was held on a weekday morning. This time the hearing was held in Boone County, but still only about two dozen people attended. Even though the Winnfield Cottage issue was being debated at this time, and the TAC voiced their concerns about the health effects of the air pollution which would be produced, local opposition to the plant, if it existed at all, was not heard. The sentiment of most local people at this time was perhaps expressed by a local farmer, who said at the hearing that he trusted the state to look out for him.

Regional Interest Groups.

Meanwhile, regional interest groups were becoming concerned, not so much about the East Bend plant per se, but about all the plants which were being planned for the Louisville-to-Cincinnati stretch of the Ohio River, one of the few River stretches left which wasn't lined with industrial developments. Opposition to the Marble Hill nuclear plant and Clifty Creek coal-fired plant started near Madison, Indiana, early in the decade, leading to the formation of a group opposed to Ohio River power plants called Save the Valley. Such regional interest increased during 1975 when a coal-fired plant was proposed to be built directly across the river from Marble Hill at Wise's Landing, Kentucky. Save the Valley began meeting with the TAC, local chapters of the Sierra Club, and other groups to keep each other informed. Interest shifted upriver for the first time, however, in January, 1976 when plans for a new coal-fired plant near Patriot, Indiana became known and Charles Tillotson, a property owner at the site, actively began fighting the power company involved. He joined with the above concerned interest groups for assistance in preventing the construction of Patriot. This in turn gave these interest groups their first opportunity to oppose a power plant this early in the siting process.

At the same time, site preparation for East Bend (located only four miles away from the Patriot site) had just begun (prior to the release of the DEIS and the issuance of any Federal permits). This drew heavy press coverage, especially in relation to Winnfield Cottage and the archaeological sites. The East Bend proposal thus came into public consciousness, but local public opposition had not yet arisen. The interest groups, however, saw the proximity of the East Bend and Patriot plants as a sign of an emerging proliferation of power plants and stepped up their efforts to get a regional review of such projects. Pressure exerted on Congressional representatives finally led to the funding of a regional study by USEPA, which became known as the Ohio River Basin Energy Study (ORBES). The TAC was the first local group to be informed of this in an April, 1976 reply from the USEPA.

DEIS Public Hearing and Comments.

Early in the coordination between the three parties preparing the EIS, the COE predicted that public reaction would not occur until after the DEIS was issued. Their prediction proved to be accurate. This is not surprising, however, since this was the public's only substantive and available source of information about the effects of the project. Following issuance of the DEIS, local citizens, although still not great in number, became alarmed and formed the Boone County Chapter of Save the Valley. Members went door-to-door to distribute handbills, pass on information about the plant's impact, and drum up support to attend the DEIS public hearing. In contrast, the organized opponent interest groups viewed the hearing, the first in the region since ORBES was formed,as an opportunity to state their case about the impacts of regional power plant proliferation, and to urge that work on these plants, including East Bend, cease until the ORBES study was complete. They were particularly incensed when they learned that, according to accepted Federal practice, only projects with applications on file prior to the receipt of the application for the project in question would be considered in the impact evaluation. Thus, as far as the impact evaluation of East Bend was concerned, the Patriot plant did not exist.

It was estimated that two-thirds of those attending the public hearing were there because of the regional power plant issue, many from outside Boone County. Most of the letters of comment on the DEIS in opposition to the plant referred to this situation. Vocal proponents of the plant represented labor unions and business concerns, and emphasized one theme--that the plant would provide electricity which would stimulate economic growth in the region and provide jobs. Opponents, who appeared to be a majority of the public participants, were much more diverse in their reasons for opposing the plant.

According to COE regulations at the time, the impacts of transmission lines were not discussed in the DEIS. Numerous comments on the DEIS concerning this issue, however, forced a reevaluation of this position. These repeated comments convinced the COE to include a discussion of these lines in the FEIS. In addition to this, the Kentucky Chapter of the Nature Conserancy, which owned several nature preserves near the expected route of these lines, directly approached CG&E on this issue just after it was announced that the power company was applying to the PSC for a Certificate of Convenience and Necessity for the transmission lines. CG&E provided a map to the Conservancy, which in turn located on it the properties they were concerned about. This showed that no such area would be crossed and, after a discussion on clearing and maintenance of the rights-of-way, the Conservancy decided that there would be no major impact.

Other public actions caused some slight modifications in plans for the plant and the content of the FEIS. A complaint was filed by barge operators on the possible obstruction to navigate the proposed facilities at East Bend might cause. CG&E later reduced the width of the docked barge fleet which, it was agreed, would mitigate the problems. William Gaither, a wildlife illustrator and biologist, was critical of the discussion on migratory waterfowl in the DEIS. This drew special attention from the COE, who ordered slight modifications in the FEIS on this topic. Several people interviewed gave Gaither credit for helping preserve some sensitive ecological areas on-site, but it appears that the decision to preserve these had already been made by the COE and CG&E.

When replies were written for inclusion in the FEIS, a few changes were made, but many other suggested improvements were refuted. Several groups gave elaborate descriptions, backed by published studies, of how the development of the power plant could be delayed if rate structures which promoted conservation were instituted. Many commenters debated the air quality model and the data used in it. Similar doubts, including those of the USEPA, were expressed about the water treatment system. Also some of the taxonomy given in the DEIS was questioned.

While government agencies in general had few comments about the project's impacts, and interest groups focused primarily on the regional power plant issue or refuted certain aspects of the environmental study, only the local citizens who commented were vehemently opposed to the actual plant site. This primarily resulted from their perception that they would bear the brunt of the impacts of the plant and from the fear that these impacts, especially air pollution, were a direct threat to their comfort, livelihood, and even their lives. While the issues they raised were basically sound, their fears appeared to be greatly exaggerated. This attitude seems to be made more extreme by a lack of understanding about the likely impacts. This in turn can be attributed to the limited information available to the local residents about the nature and extent of the facility.

After the public hearing, interest in the plant diminished. The only major action considered was a lawsuit, begun by the TAC, to stop construction of the plant based on the regional proliferation of plant proposals. The potential litigants eventually decided that the chances of success of such a law suit would be improved if a plant were challenged which wasn't as far into the licensing process as was East Bend. Thus the suit against CG&E was never filed. An opportunity for public comment existed upon the release of the FEIS and the preliminary determinations on further permits, but these opportunities were largely ignored by the public. The few comments on the FEIS were relatively minor and were made after the comment period had expired.

FINDINGS AND CONCLUSIONS

1. No laws or regulations were violated.

There is no evidence that any of the procedures used to obtain the required permits, to construct according to them, or to allow public comment violated the letter of the law. Only a few cases were noted, however, where any party took the initiative to do more than the minimum required. Moreover, such instances occurred only when it would benefit the power company or not require a significant change in their plans. Examples of these occurrences include an early meeting with Boone County officials to discuss obtaining low-cost pollution control bonds, and a discussion with the Nature Conservancy concerning possible impacts to nature preserves from the transmission lines.

2. New and changing rules and regulations for the permitting process, including the use of a lead agency and third party consultant, contributed to the coordination and communication problems during the East Bend EFS process.

CG&E and many regulatory agency representatives interviewed felt that the East Bend case study would not be representative of their normal operations since it was one of the first plants to be sited under these regulatory conditions. CG&E in particular feels that information can be most effectively transmitted to the public by following the statutory requirements of the coordinating lead agency. More public participation can only occur, they feel, when the necessary legislation is enacted and effectively implemented.

3. The power company and the regulatory agencies didn't prevent the public from obtaining information about the project, but neither did they promote any form of public information outside of required channels.

When asked if they were encouraged or restricted from participating in the decision process, many of those involved said they felt neither. Information would be given if it was specifically asked for, but nothing was volunteered by the power company unless it was to their benefit. Several interviewees were of the opinion that CG&E would have preferred to build the plant in complete secrecy. For the public to participate, they had to take the initiative themselves and even then this was usually restricted to exchanging (or arguing about) information rather than discussing alternatives to the power company's plans. The COE was given credit for giving proper notice and running an organized public hearing, but common opinion of attendees was that this meeting was not meant for decision making.

4. Unless a public notice is a paid legal notice, newspapers are not required to publish them.

This was a rather unexpected finding. It was learned of while trying to locate a formal notice of the DEIS hearing in the local Boone County weekly paper. Apparently unless the space is paid for, which wasn't done by the COE, the editor has the option of printing the notice, using parts of it in a story, or simply ignoring it (as in the case of East Bend). The editor of a similar paper in Switzerland County, Indiana, across the Ohio River from East Bend, stated that they are inundated with these notices, especially news releases from power companies. Even though this paper has actively covered the local power plant controversy, they rarely use the material in these news releases unless it fits a proposed story.

5. Input to the PSC on the critical questions of plant need and site suitability was given almost exclusively by CG&E.

Participation at this stage, which occurred before CG&E committed themselves to the site by purchasing any land, was minimal. This could be attributed primarily to the fact that such participation was not widely solicited, the environmental impacts of the plant were not known to the public at the time, and the hearing was held far from the plant site. As a result, the plant was viewed in a positive light by most of those involved as public hearing participants at the time. This was compounded by a lack of review authority held by the PSC at this time. No state environmental review was required for either the PSC certification or the DNREP construction permits. Thus, CG&E was allowed to begin construction at their own peril and invest more than $17 million before the FEIS was issued.

6. No land was purchased until after a Certificate of Convenience and Necessity was obtained from the PSC, however options to buy land were held prior to this time.

In the East Bend case, this fact was observed when certifications were sought for both the plant itself and the transmission lines leading to it. It is significant to note that the power company hesitated to financially commit themselves to a site before this initial approval was obtained. The PSC review stage thus seems to be the only point where discussions of the plant need and alternative site choices are meaningful. After this time, too much money and time is invested, both by the utility and the licensing agencies, to give any serious consideration to disallowing the construction of the plant.

7. CG&E and the COE based their analysis of what the public would object to on past experience rather than through consultation with potentially interested publics.

Throughout the evaluation of the impacts of the plant, discussions centered on how to anticipate and respond to expected concerns of the people and other govenment agencies. Only the USEPA and U.S. Fish and Wildlife Service were asked by the COE to review and comment on preliminary environmental findings. Steps proposed early in the coordination process were intended to lessen the public's concerns when they learned of the plant's impacts, and to foresee and mitigate the expected objections of the public. Thus the people's objections and the method for resolving these objections were set in CG&E's and COE's minds well before the public could express them. For the most part this foresight was accurate, and most concerns were addressed. However, environmental interest groups and local residents resented the fact that they were not allowed input into these decision and this caused doubt about the findings of CG&E and the COE on all issues. Also, this may have led to more concern about items left out of the DEIS than was warranted.

8. Any changes made to CG&E's plans, once they were formulated, either did not require significant design changes and/or costs to the company, or they were granted after great reluctance.

The only major change to CG&E's original design, which was drawn up before the plant was first formally announced will (presumably) be the water treatment scheme as mandated by the NPDES permit. At this writing, however, this has been in conflict for over five years. Provisions for preserving the archaeological sites and unique wildlife habitat, and for redesigning the barge dock caused no major disruptions in the company's original design. Requests for preservation of Winnfield Cottage and destroying less prime agricultural land were denied since they could be accommodated only through perceived hardships to CG&E. Thus critics on these matters were not satisfied by the ultimate outcome. Suggestions that construction be delayed for a regional study or an attempt at energy conservation through a revised rate structure were never given serious consideration. Many critics felt that such actions threatened the company's means of growth - a continuing construction program.

9. The only substantial information flow on the impacts of East Bend to and from the people occurred when the DEIS was being evaluated.

Little was known of the size and magnitude of the project until the DEIS was issued. The press, especially the Kentucky Post, regularly reported the status of the plant after they first learned in January, 1973, that Rep. Snyder was acquiring options on land at East Bend. The only major issues which arose before the DEIS, though, were the circumstances surrounding the acquisition of land, the uncertainty over the amount of land required, and the preservation of the historic sites. Apparently these issues either didn't concern most people, were negated by the economic benefits also reported, or just were not noticed. The

DEIS is the major document which requires identification and evaluation of all the negative impacts of a development. The DEIS therefore attracted considerable local attention probably due to the personal threat the plant seemed to represent in this analysis.

10. Winnfield Cottage would have had a better chance of being saved
    if the COE had acted.

NEPA requires the lead agency for EIS preparation to insure that the negative impacts of a proposed project are as small as possible. The COE, however, took their role to be principally facilitative, acting to arrange meetings with other agencies on matters which had to be settled before their permit could be granted. In the case of the Winnfield Cottage controversy, they were in an ideal position to negotiate an agreement between the two sides, who were never really far from settlement, but never made a concerted attempt. While the two sides continued to disagree, vandals destroyed the cottage. A similar case could be made in the dispute over the NPDES permit, where a COE effort at mediation may have spurred an agreement.

11. The failure to communicate within the USEPA contributed to the
    delay in evaluating and resolving the NPDES permit issue.

It seems that separate branches of the same agency, USEPA (Region IV) acted on different information. The agency responsible for major environmental review and issuance of an important permit did not know the complete status of the DEIS document, and thus were unable to coordinate the public review of the NPDES permit for the project. The COE, of course, is also responsible for the lack of coordination in this review. Because of this mixup, CG&E began work on an unacceptable treatment system, and since then has been reluctant to make major changes in it as requested by USEPA. Of course this debate can legally be delayed until the system is completed since regulations do not require an actual permit application until 180 days before discharge.

12. The amount of time taken to produce the DEIS and FEIS was very long.

Over 3 1/2 years passed between CG&E's initial contact with the COE and the release of the FEIS. Of this time, the first half-year was used for organization, the next year was used to perform the environmental studies, the following half-year was used to report and review these findings, the half-year prior to the release of the DEIS was used to determine impacts and prepare the study for release to the public, and the final year was used to answer the public's comments, make revisions based on these, and perform a final determination. It can be speculated that the DEIS was delayed because of a drop in load growth due to the 1973 energy crisis, or a need to settle the Winnfield Cottage issue. CG&E states that much of the wasted time resulted from changes in requirements as to what went where in the DEIS. The FEIS, on the other hand, appears to have been delayed primarily because of the disagreement over the NPDES permit.

13. Local government officials were virtually powerless in the East Bend case, having no official authority, and thus were largely ignored.

Local officials report that the only meetings they had with the utility were a courtesy, used for "PR" purposes. The Boone County Fiscal Court was approached early in the licensing process, basically to get their aid in obtaining low-cost bonds on the pollution control equipment (which are still outstanding, according to Judge Ferguson). The Boone County Planning Commission asked to review plans for the plant at the time of the PSC hearing, but were repeatedly ignored. When they finally got a response, CG&E sent a representative to one of their meetings to gain their support. They were also accidentally left off the mailing list for the DEIS. After learning of and attending the DEIS public hearing they apparently had a request to meet with COE on their review of this document rejected. The Commission was thus prevented from taking an active role in the planning process, even though they continually had an interest in doing so. Although they had no authority, their suggestions may have helped ease the tensions which developed, caused by lack of communication.

14. Local officials favored the East Bend plant, but opposed the Patriot plant.

The high opinion of East Bend that local officials held was due to the tax money it would bring into the county coffers. Patriot, in the Boone County official's view, would only bring pollution to the county. Some reservations concerning even East Bend are presently being expressed by these officials as the impacts become clearer, however. Originally, only Judge Ferguson expressed any opposition, and then not to the plant itself, but to its impact on Winnfield Cottage and the amount of prime agricultural land being consumed. Two members of the Planning Commission were the only local officials attending the DEIS hearing for East Bend. At a similar hearing held for Patriot, however, several Boone County leaders attended and/or spoke in opposition.

15. There was a basic feeling of fear among some local residents.

Those locally who wrote the COE about their opposition to the plant didn't just comment on the problems the plant would cause for them; they actually feared for their lives due to the air pollution which would be emitted. While the basic impacts they referred to certainly existed, the degree of apprehension held by local residents was greatly exaggerated. Some sort of a public information program about the control technology to be used, the actual air quality to be expected, and the health problems which would result may have helped to reduce some of these fears.

16. Public participation on East Bend was used primarily to emphasize the issue of the proliferation of power plants along the Ohio River.

Much of the attention given to the regionalization issue was spurred by the fact that the DEIS public hearing on East Bend was the first opportunity for public comment after ORBES was formed. Those concerned with the regional plant issue felt justified in demanding that each plant be viewed in the environment within which it would be operating - a fully developed region. This conflicted with Federal licensing procedures, however, which were used even though the Federal government had funded a study which would do what these critics desired. Because of this regional orientation, and the lack of organized local opposition to the plant, issues specifically concerning East Bend were of secondary importance.

17. There is a general feeling of disillusionment with the role the public was given in the EFS decision process on East Bend and other regional power plants.

The frustration was evident in nearly everyone contacted about their role. Many had opposed several of the regional power plants in the past and felt that the concessions gained in that time had only minimally improved opportunities for making their point of view known and accepted. These, they added, were won only in the face of numerous obstacles. Attitudes expressed about their role in East Bend were more pessimistic, since this case had presented little opportunity for influencing the decisions of the utility due to the advanced stage of development the project was in when the public was involved. This despair reaches into attitudes about the ORBES study also. This is because it has taken so long to complete the study, which has allowed the power plants being studied to continue being developed, even if not needed or improperly planned. Opposition to coal-fired power plants has dwindled recently in these previously involved groups, apparently because most of the objectionable projects have now been licensed.

18. The material presented in the case study about the actual siting procedures and criteria used, and the evaluation process conducted for each alternative site is limited because CG&E did not answer a questionnaire sent to them concerning these subjects.

CG&E stated that the information desired in the questionnaire had already been placed in the public record. The discussion on siting procedures and criteria in this case study was thus drawn from the FEIS. Detailed information concerning the reasoning behind the choice of East Bend and documentation of its superiority over other sites was not available, however.

ABBREVIATIONS USED: EAST BEND CASE STUDY

CAI	Commonwealth Associates, Inc., CG&E's consultant for the siting and environmental studies;
CG&E	The Cincinnati Gas and Electric Company, who owns 51% of East Bend Station and is responsible for its licensing and construction;
COE	Corps of Engineers, Louisville District, the lead agency for preparing the EIS and determining whether to issue the DA Permit.
DA	Department of the Army, whose permit is required for construction of structures in navigable waterways;
DNREP	Kentucky Department of Natural Resources and Environmental Protection, which issues state construction permits for air and water;
EFS	Energy Facility Siting;
EIS	Environmental Impact Statement, where DEIS is Draft EIS, and FEIS is Final EIS;
KHC	The Kentucky Heritage Commission, in charge of protecting historic resources of the state;
MW	Megawatts;
NEPA	National Environmental Policy Act of 1970;
NPDES	National Pollutant Discharge Elimination System, which sets effluent limitations on plant wastewater streams;
NSPS	New Source Performance Standards which set effluent limitation on the air waste streams;
ORBES	The Ohio River Basin Energy Study, a three year study by a university research consortium on the effects of development of energy facilities near the Ohio River;
PAC	The President's Advisory Council on Historic Preservation, the Federal equivalent of the KHC;
PSC	Kentucky Public Service Commission, responsible for making the State's determination of need for the plant;
PSD	Prevention of Significant Deterioration, which limits the amount of air pollutants any one source can contribute;
TAC	Tri-State Air Committee, a branch of the Southwest Ohio Lung Association, concerned about the health effects of air pollution, and;

USEPA	United States Environmental Protection Agency, Region IV, Atlanta, Georgia, responsible for the NPDES permit, the PSD determination and coordination during EIS preparation.

FIGURE 1. Flowchart Of Activities, East Bend Case Study

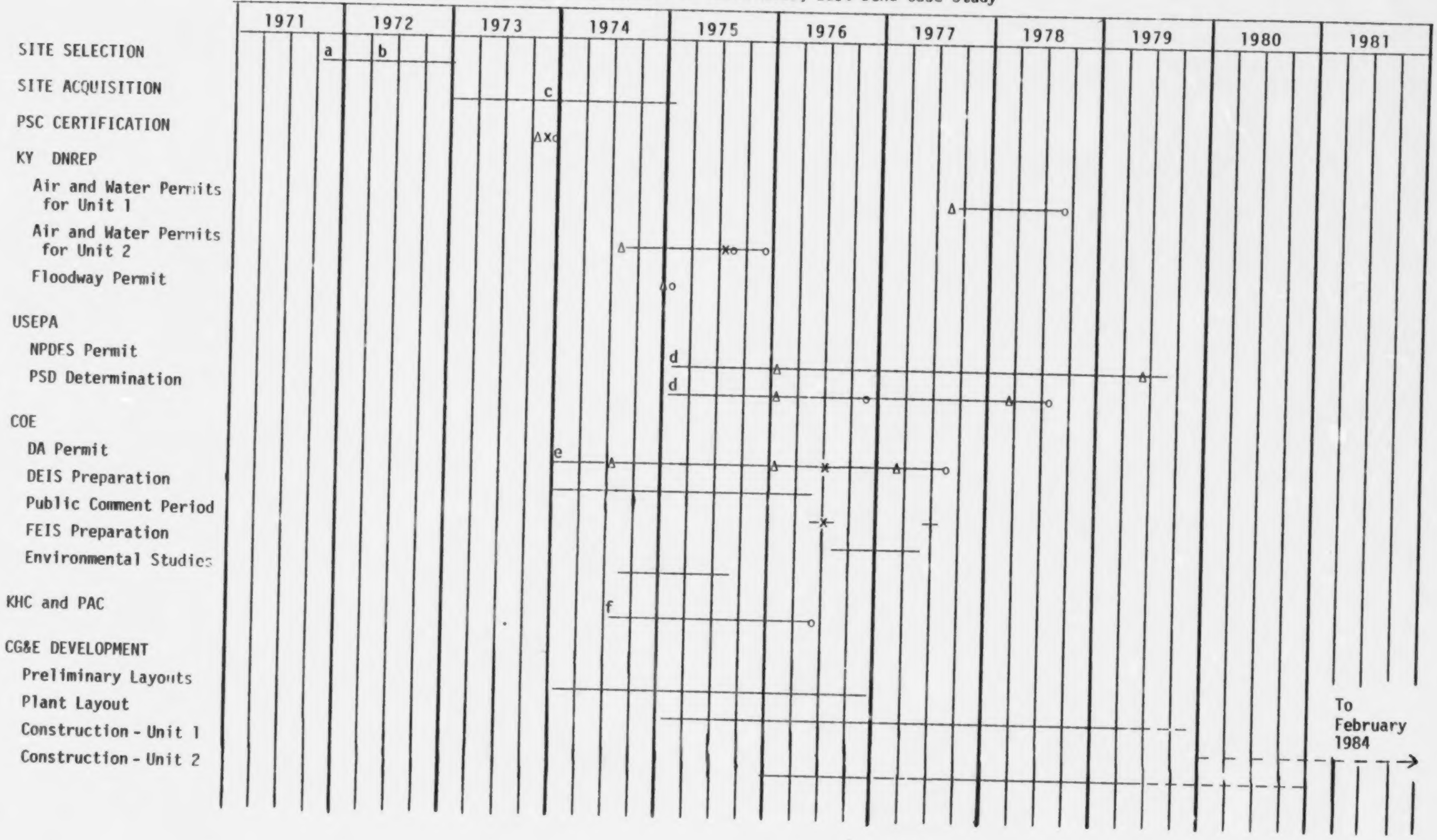

Figure 1, continued

Key

Δ	Date of Application
o	Date of Permit or Authorization
x	Date of Public Hearing
——	Period of Activity
– – –	Projected Period of Activity
a	CAI hired to perform siting study
b	CAI siting report issued
c	Condemnation suit against James Mullins
d	First contact with the USEPA by CG&E and the COE
e	First contact with the COE by CG&E
f	Winnfield Cottage placed on the National Register of Historic Places

Chapter 4. KILLEN CASE STUDY - OHIO

INTRODUCTION*

The Killen Electrical Generating Station site is located on the Ohio River 390 miles downstream of Pittsburgh, Pennsylvania, and is 32 miles west of Portsmouth, Ohio. It is located in south-central Adams County, Ohio, near the small community of Wrightsville, and 8 miles from the nearest town, Manchester (population ~2400 in 1972). The limit of glacial penetration passes through Adams County, thus the unglaciated eastern portion is rugged with steep, wooded slopes while the western portion is more rolling due to glaciation. This also serves to divide the predominent land use in the county between forested land in the east and agriculture in the leveler western region. The Killen site is located in the midst of the rugged terrain, but lies on level ground in the bottomlands of the Ohio River.

The ownership arrangement for Killen involves CG&E and DP&L, as in the East Bend case study, but with DP&L responsible for construction and licensing in this case. The site now under DP&L's control was selected to eventually facilitate a 2400 MW plant. Presently, only two 600 MW units have been planned and subjected to an environmental review. These are presently under construction at a cost of $657 million (COE public hearing, January 1977). Indications are that a subsidiary of DP&L is constructing the plant and that a DP&L-organized union has hired the construction workers. After numerous delays due to a decrease in system demand growth beginning in 1973 and consistently falling below estimates of growth in every year since, the scheduled startup dates for Killen Units 1 and 2 are 1986 and 1983 respectively.

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*Abbreviations for parties named in this case study are defined where first noted, and are summarized on page 82.

Killen Station will be fired mostly by low-sulfur coal transported to the site by a rail-barge system from Logan and Kanawha Counties in West Virginia. Use of this coal effecively eliminates the need for flue gas desulfurization, but a 99.52 percent efficient electrostatic precipitator will still be required to remove particulates. The ash thus removed will be transported with recycled water to a 250 acre, 35-year life expectancy ash basin. A maximum of 30.74 MGD will be drawn from the Ohio River as makeup water for replacing evaporation from two mechanical draft cooling towers and as boiler blowdown for bottom ash transport.

Unlike Boone County, the site of the East Bend Generating Station, Adams County has already experienced the development of a large electric generating facility. The 2400 MW J. M. Stuart Plant, built by DP&L on the Ohio River in western Adams County, and used by them,CG&E, and the Columbus and Southern Ohio Electric Company, was begun in 1965 and completed in 1974. This brought an enormous tax base to this basically poor, rural area. The county government, which is extremely pleased with DP&L and the development they have brought, was able to place an annex on the county courthouse due to these increased tax revenues. To spread the wealth from the Stuart plant, however, the Ohio Department of Education pressed for the consolidation of schools in a three county area (Adams, Brown, and Highland Counties) into the Ohio Valley School District. The merger was narrowly approved by voters in the early 1970's after several attempts. According to the editor of the Manchester Signal, this has served to pit town against town, caused mismanagement of the revenues from Stuart, and caused an area where school levies were always voted in, to become one where they are never passed. At this writing, this situation has climaxed into a month-old teacher's strike which has the community in turmoil. It is in this setting that DP&L is now developing Killen, a setting where one senses the changes in lifestyle taking place have caused mild irritation short of vocal objection.

PROCEDURES

Site Selection

Although it was never specifically stated, the description of the site selection procedures seems to indicate that the alternative sites considered by DP&L were drawn from the same CAI study that CG&E used to select East Bend. Consider these facts:

1. The acquisition of options for the land, and subsequent announcement of plans to build the two plants occurred simultaneously during 1973;
2. Killen was selected in a regional siting study by DP&L and CG&E in parts of Ohio, Kentucky, and Indiana, as was East Bend:
3. The siting study picked environmentally acceptable sites which would later be subjected to more detailed engineering and economic analyses;
4. The sites considered were all capable of at least a 2400 MW station;
5. The CG&E management team which selected the East Bend site visited a Wrightsville site while they were making their decision; and
6. The News Release in October, 1973 announcing East Bend contained, according to the Manchester Signal, a paragraph mentioning that DP&L was considering another site found in the CAI study as a sister station to East Bend.

Because of the location of its service area, DP&L "gave overriding consideration" to Ohio sites, choosing two sites along the Great Miami River between Dayton and Cincinnati (near Trenton and Seven Mile in Butler County, Ohio), three sites along the Ohio River (near the Zimmer Nuclear Station at Moscow, Ohio, and at Wrightsville and Sandy Springs in Adams County), and a non-river site near Bentonville in Adams County. Based on the results of the initial siting study and a later, more detailed study evaluating the above alternatives, the following was concluded (FEIS):

1. The Wrightsville site was selected. Here a plant could be economically constructed and could operate in an environmentally acceptable manner.

2. The Trenton and Seven Mile sites are in an area where significant environmental impact could result due to needed reservoirs and a higher population density.

3. Location at Moscow would hinder the town's development since the two plants would box in the town.

4. Sandy Springs is close to Wrightsville but would have higher transmission costs, be located closer to a large population center, has less area available and is bounded by Shawnee State Forest. (This site was acquired later in 1974 by the Ohio Power Company, but has yet to be developed.)

5. Four to five times as much land would be required at Bentonville for a cooling pond. Also, the other sites had a better location for water supply and transportation.

Land Acquisition

The characters had changed, but DP&L used virtually the same methods to obtain the Killen site that their partner, CG&E, had used at East Bend. On March 15, 1973 the Manchester Signal reported that options were being obtained by C. D. McClanahan, Vice Chairman of the Board of West Shell, Robinson-Middendorf, Inc., a Cincinnati realtor. These were for an unidentified client with "the right of eminent domain", who was offering $1,000 for the option, an additional $5,000 if it was extended past March, 1974, and, it was belived, a standard price per acre. According to Karl Kirshner, one of the landowners who sold, contact was made with him 6-8 months before an offer was made, and an admission that the site was for a power plant came only when he expressed reluctance to selling.

While local residents were trying to guess for whom and for what the options were, Adams County officials were meeting regularly with DP&L on the plans for the plant. E. H. Roush of the Adams County Planning Commission stated that both DP&L and the county government didn't spread word of these plans since both wanted the plant in the county and the county didn't want anything to possibly disrupt these tenative plans.

While most of the landowners contacted quickly agreed to sell their land, including hill land adjacent to their bottom land, the owner of what turned out to be the key plot required was holding out and unsuccessfully urging his neighbors to do likewise. Daniel Ralston owned a farm which had been in his family for four generations and had no intension of selling it, refusing all offers for a year. Finally, in April 1974, he was "badgered so much," by calls at all hours of the day, being told construction must begin soon to beat a deadline for "new EPA regulations," (possibly for the Ohio Power Siting Commission, whose power began October 24, 1974), that he made DP&L an offer, which they quickly accepted. The boiler and stack for Killen are now under construction on the former Ralston farm. Had he to do it over again, however, Ralston vows he would do anything possible to prevent this sale.

Ohio EPA Permit to Install

Announcement of the plans to build the first two Killen units was made in a news release, reported by the Manchester Signal on November 29, 1973. At that time, Ohio required no certification of need for a new power plant (the Ohio Power Siting Commission and, in some cases, the Public Utilities Commission presently rule on this). Therefore, the first and only authorization needed before construction above the high water mark on the Ohio River could begin was the Permit to Install Units 1 and 2 from OEPA. DP&L first applied for this permit on January 16, 1974. This was revised on March 27 based on additional information requested in a February 28 letter from OEPA. The air discharge, the waste water treatment facility, and the solid waste disposal facility were all evaluated before the permit was issued. The OEPA was ultimately responsible for the permit, but many of the analyses were performed by authorized city, county, and regional agencies. For instance, the Portsmouth City Health

Department performed the required air studies (which did not require air quality modelling).

Since Killen was one of the first major sources to be proposed under the permit to install procedures, a meeting was held on May 8 between those charged with determining whether compliance could be assured to discuss some unclear areas in their procedures. DP&L was then informed at a May 16 meeting that the permit could be issued if they would give assurance by July 1, 1975, that the first 5 years supply of low-sulfur coal had been obtained or, if not, that plans for an SO_2 removal system would be drawn. Based on this assurance, OEPA issued the Permit to Install on June 5, 1974. Under the permit, substantial construction must begin within 18 months unless good cause for a 12 month extension could be shown. Also detailed plans of the Station had to be submitted within 20 months for OEPA approval. These deadlines were easily met, however, since construction began immediately after the permit was issued.

State Pollutant Discharge Elimination System (SPDES) Permit

In Ohio, the state has been given Federal authority to issue the NPDES permit, thus it is known as an SPDES permit. Application for this permit must be made to OEPA at least 180 days prior to wastewater discharge. This permit has not yet been applied for, but application will be made before this deadline according to the FEIS.

COE EIS Preparation and DA Permit

Since construction for Killen was begun before the June 1, 1975 deadline for PSD applicability, and Ohio has retained the authority to issue NPDES permits, the only Federal agency with regulatory authority over Killen was the Corps of Engineers. In this case, intake and effluent structures, a coal unloading dock, and a construction unloading dock, all with accompanying dredging, were needed at Killen and were subject to a

DA permit before construction could begin on these structures. The entire power complex was considered to have a major environmental impact, thus an EIS and public interest determination were required as a prerequisite for this permit.

The first contact between the COE and DP&L appears to have occurred in December 1973. This led to DP&L's March 6, 1974 submittal of an application for a permit to construct the construction unloading dock alone. Since the power company did not consider this aspect of the project to constitute a major environmental impact, they requested that this structure be permitted before the environmental review in order to maintain their construction schedule. Although COE officials stated both now and at the time that this action ran counter to normal procedures, the COE was in basic agreement with DP&L's judgement on this matter, and gave their tentative approval. This was stated in Public Notice No. 74-26, dated June 4, 1974, and sent to interested parties, primarily State and Federal agencies. Several agencies, especially the U.S. Fish and Wildlife Service expressed their disapproval of this separation of facilities for approval, feeling it would allow construction to proceed at a high rate before the EIS was prepared, and thus urged that the permit be denied. Since opposition was encountered on these grounds, the COE felt that they had no choice other than denial, and did so.

The Envirosphere Company was contracted by DP&L to perform the environmental studies. Beginning in June, 1974, they performed field studies on aquatic, water quality, ecology, and air quality/meterology lasting one year. These were performed concurrently with site clearing and grading, and thus often reflect an environmental setting influenced by this activity. In October, however, the construction program was slowed due to a cut in DP&L's 1974-75 construction budget stemming from a 3.2 percent decline in summer peak load due to user conservation during 1974. An 8.2 percent increase in peak usage had been predicted. In the meantime, the environmental studied continued, commencing with the filing with the COE on September 19, 1975 of the environmental report accompanied by an application for the DA permit for all proposed facilities.

DP&L, however, was still pressing to obtain early approval of the construction unloading dock. The Federal Energy Administration apparently held the same view, and sent a representative from their Task Force on Power Plant Acceleration to meet with the COE and the Fish and Wildlife Service on June 25, 1976. Suggestions included a separate permit with a requirement for restoration if the total project permit was not allowed, and a DP&L suggestion of a temporary dock. The Fish and Wildlife Service, though, maintained their objection that this action would accelerate the construction program before the environmental analysis was made. To illustrate their concern, they indicated that in one case a project with large amounts of money invested was allowed to proceed by the Courts, even after the Federal permit was initially denied.

Based on this meeting, it was agreed to again try gaining the approval of a separate permit. The comment period ran concurrent with that on the DEIS, which was sent to the CEQ and other agencies on or about July 9, 1976, and was announced in COE News Release 76-40 of July 15 and in the Federal Register on July 17. Public Notice 76-110 of August 24, 1) gave a description of the facilities being planned in the waterway, 2) announced the availability of the DEIS, 3) requested comments on the proposed work by September 23, 4) stated that a request for a public hearing could be made before the same date, and 5) stated that an early permit on the construction unloading dock would be granted if substantive objections were not made. These announcements led to several requests for the DEIS from universities, consulting firms, and interested groups; most of the

Federal and state agency comments on the DEIS; and requests for a public hearing from three interest groups and five Adams County landowners residing in Cincinnati. Although no objections to the separate permit proposal were apparent in these written comments, this proposal was again denied.

Due to the number of requests received, a public hearing was scheduled for January 19, 1977, and held at 7:30 P.M. in Portsmouth, Ohio, just after a severe blizzard. It was announced in Notice of Public Hearing No. 76-171 on December 17. Forty-six people were registered in attendance at the hearing, with six speakers. Following the hearing, several more letters of comment were received from interest groups and largely non-resident Adams County property owners. Most of the comments received were answered and led to revisions in the FEIS, which, after review by the Ohio River Division of COE and the Washington, D.C. headquarters, was sent to the CEQ and those commenting on the DEIS on or about October 3, 1977, and made available to other parties who received the DEIS. This action was announced in News Release 77-74 of October 25, 1977 and in the October 21 issue of the Federal Register. Most of the comments on the FEIS were received well after the November 20 dealine and, thus, had little bearing on the December issuance of the DA permit.

Memorandum of Agreement

Four important archaeological sites are located on DP&L's Killen Station property. One of these, the Wamsley Village site of the Fort Ancient culture, located at the mouth of Ohio Brush Creek, was long recognized as such and, in fact, was investigated by the Ohio Historical Society (OHS) in 1964. Another, an Adena Indian Burial Mound, was also known to local amateur archaeologists. One of them, Roger Cunningham, informed the Archaeological Division of the OHS about the proposed Killen

Station late in 1973. At the same time, DP&L called the OHS to determine if any historical sites would be impacted by the plant. Based on this contact, a meeting was held December 18, 1973 at the Killen site between several DP&L officials, Mr. Cunningham and Dr. Ramon Baby of the OHS Archaeological Division to point out these sites. Since at this time only sites on the National Register of Historic Places were subject to the Memorandum of Agreement procedures under the National Historic Preservation Act of 1966, the OHS applied for inclusion of both of the above sites on the Register in March, 1974, with the listing occurring on July 30. In the meantime, DP&L was informed of this action and, in a letter of March 6, agreed, after receiving preliminary site plans, to preserve these sites. The mound was fenced just after DP&L took control of the Ralston property it sat on, and the Village was set aside as a buffer for the plant, designated by DP&L as a park area.

The actual Memorandum of Agreement procedures couldn't officially begin until a Federal Permit was applied for. Once this occurred, DP&L contracted with the OHS in the Spring of 1976 to perform an archaeological survey of the Killen sites as part of the Memorandum requirements. Field surveys, which were hampered by the lack of cultivated land and the site work which had already taken place, began April 13, and investigated six areas by June 2. In their report of July 5 to DP&L, it was recommended that further studies be done on two of these sites, the Killen Ridge and Grimes Village, which, to be included in the Memorandum, had to be determined eligible for the National Register. This occurred November 8, 1976.

Once all National Register listed or eligible properties were determined, a plan prepared by the COE was accepted on December 3, 1976 and finalized in the Memorandum between the COE, OHS, and PAC on March 24,

1977. This placed a stipulation on the DA permit calling for the preservation of Wamsley Village (including the site of the first Adams County Seat), the burial mound, and the scientific excavation of the Killen Ridge and Grimes Village sites. The excavation was performed by the Cleveland Museum of Natural History between March 6 and May 10, 1977, funded by DP&L, monitored by the National Park Service, and summarized in a report to the Department of Interior Interagency Archaeological Services-Atlanta, dated December 4, 1978.

Since the enactment of the Ohio Power Siting Law, archaeological surveys in two alternate plant sites must be done before approval is given to develop a site. This would have eliminated the disturbance of archaeological resources by construction as occurred at Killen, and would have facilitated the search for additional archaeological areas which were suspected to be present at Killen.

Transmission Lines

While DP&L was able to avoid OPSC regulations for licensing construction of the Killen Station itself, they were required to obtain separate OPSC permits for the lines from each of the two units. These covered the construction of approximately 80 miles of new 345kV transmission lines from Killen to the new, OPSC-certificated Bath substation, located about 20 miles east of Dayton, and a second circuit on an existing line between the Stuart Station and the existing Don Marquis substation in Pike County, Ohio (the Stuart/Marquis line). These regulations were much more stringent than those under which the Station itself was permitted by the State, and thus required a longer review period. The licensing process for these lines, which, in fact, is still in progress for the line servicing Unit 1, was of the same magnitude as that required for the plant; and, in terms of public participation, was much more comprehensive.

The permit which has presently been granted, for the line to service Unit 2, authorized the construction of a six mile line from Killen to the existing Stuart/Marquis line (the Killen-Stuart/Marquis line). This covered the construction of lattice towers capable of carrying two circuits and a cable for one of these circuits. A new cable would then be placed on a vacant circuit of the Stuart/Marquis line, intertying Stuart to Killen and Killen to Marquis. The second, presently unapproved permit, will, if granted, allow the construction of a line to carry the power from Unit 1. The most likely route for this will be along the other circuit of the new Killen-Stuart/Marquis line then northwestward from Stuart/Mar uis on one circuit of a proposed two circuit line to the Bath substation (the Killen-Bath line).

The permitting action for the Killen-Bath line was first preceded by approval of the Bath substation. The first public discussion of this was, therefore, a pre-application of conference for the Bath Substation, held in Columbus, July 7, 1976. This meeting was open to the public, but only as observers. The notice of this meeting, however, made no mention of the future use of the Bath substation as the tie-in point for a transmission line from Killen. In addition no local governments between Killen and Bath were on the mailing list for this notice. Therefore, although the Bath substation is an integral part of the Killen transmission system, it was considered independently of the Killen-Bath line. The issues surrounding its permit did not focus on its relation to Killen. At the other end of the Killen transmission network is the Killen-Stuart /Marquis line, for which a permit was applied for on February 22, 1977. The application was for four circuits on two separate lines, to presumably service all four planned Killen units. Again emphasis was on this facility and its link of Killen and an existing transmission line. Little mention was made of any further transmission facility needs such as Killen-Bath.

To evaluate an application to OPSC, several steps are followed. First the application is subject to a completeness review by the state agencies whose heads make up OPSC. Once revisions mandated by this review are satisfactorily made, OPSC dockets the application. Following this, an Administrative Law Judge (ALJ) is assigned to preside over the evaluation process and himself evaluate the evidence submitted during this process by the parties involved, in this case DP&L, OPSC staff, other agencies and the general public. Then, based on his evaluation, the ALJ recommends a course of action to the OPSC commissioners, who make the final decision. To facilitate public participation, the applicant is required to send the application to the chief executive of the counties, municipalities and public agencies whose jurisdictions would be affected, who then have 30 days to become intervenors in the case. In addition to this, the applicant has to publish notice in the news media along the two alternate routes. This consists of a map of the approximate routing, a list of those who received a copy of the OPSC application, and the applicable OPSC regulations. For the Killen-Stuart/Marquis permit, this was published in June, 1977. After publication, any interested parties have 30 days in which to file a Petition for Leave to Intervene. This attracted only two intervenors in the case, who, according to OPSC regulations, are on an equal legal basis with the other two participant bodies, DP&L and the OPSC staff.

To give all parties a chance to state their case, as well as to allow interested members of the public to make statements, a series of public meetings is then held. For Killen-Stuart/Marquis, the first meeting was announced in the above public notice and held June 21, in West Union, Adams County. The meeting was basically to gather information from the public about anything overlooked in the application, to give DP&L and the

OPSC staff a chance to explain the effects of the proposal and the decision making process, and to allow a question-and-answer session. Six people gave talks at this meeting, but most of the dialogue was controlled by an unidentified member of the audience. Following this, a more formal public hearing was held in West Union on August 15 to present statements from the public (two were given) and to review the recently issued Secretary's Report--the recommendations of the OPSC staff. The following day, adjudicatory hearings were held in West Union where, courtroom fashion, expert witnesses for each side gave testimony subject to cross-examination. One witness for the intervenors, four for DP&L and two for the OPSC staff were questioned at this time. Based on the evidence presented, the ALJ made his recommendation in an October 14 report. This, then, was presented to the OPSC commissioners, who gave certification January 12, 1978. They did, however, refuse to certify all but one of the four circuits DP&L applied for, since the need for all of them at that time was not shown.

The final and most important piece of the transmission network is the Killen-Bath line. Since the circuit to service Unit 1 from Killen to Stuart/Marquis was not certificated by the above action, it had to be included in the application for the line to the Bath substation. This was filed September 28, 1978 following consultation with selected governments along the route, and consisted of two large volumes of the results from studies of need and environmental impact along the two alternate routes. Several deficiencies were uncovered in the completeness review, which were corrected by DP&L January 29, 1979, and thus the application was docketed on March 22, setting into motion the public review process. Copies of the application were sent to the appropriate bodies in each affected county, and a full-page public notice was placed in the news media in mid-April. After receiving this information, the Highland County Commissioners and several Township Trustees therein became intervenors in the case. In addition to this, over 200 Petitions for Leave to Intervene were submitted by several other Highland County Township Trustees, the City of Hillsboro, and numerous individuals living along the proposed routes. These parties were also given intervenor status, increasing the number so involved to 237. Several parties also filed letters of opposition or concern, and were provided with a "Citizen Participation Brochure" by OPSC which described the opportunities available to them.

One such opportunity was the series of public meetings in each affected county, which was announced in the published news media notice described above. These were held in Wilmington, Clinton County on April 24 (attendance ~100), Xenia, Greene County on April 26 (attendance ~50), West Union, Adams County on May 1 (attendance 7) and Hillsboro, Highland County on May 2 (attendance ~115). Although many of the speakers from the general public were upset at the short amount of time they had in which to prepare, they were able to point out several features along the routes which had been overlooked. The most important of these were several small airports, which would either be crossed or interfered with by the lines, and a hunting preserve, through which the line would pass.

Based on the areas identified at these meetings, DP&L made several minor changes in their routing proposals. Also they were subject to requests for additional information from both the OPSC staff and from the intervenors. Since the revised routes had not been evaluated by DP&L as was required the OPSC staff was given an extension on the deadline for submitting the Secretary's Report, their evaluation of DP&L's proposal. Also, the adjudicatory hearings were postponed from June 26 until October 23. Two formal public hearings were held as scheduled, however, in Hillsboro on June 25 (attendance ~150) and Wilmington on June 26 (attendance ~250).

Following these hearings, the OPSC staff filed a second request for information from DP&L, which was answered July 26. In the meantime, the revised application was docketed, requiring the same public information process as occurred when initial docketing was granted. Also, the ALJ went on a site visit of both alternate routes. Then, on August 9, DP&L filed a request for information from the intervenors followed by the submission to the OPSC by all parties of lists of expert witnesses who would testify at the adjudicatory hearings: 14 for DP&L; 7 for the OPSC staff; and 5 for the intervenors. Due to the technical nature of this testimony, the ALJ announced at a pre-hearing conference on October 12 that he was delaying the adjudicatory hearings from October 23 to December 10 to allow for the prefiling and review of this testimony. Another formal public hearing was held as planned on October 22 in Wilmington (attendance 100), primarily to discuss the Secretary's Report, which was issued October 10. The OPSC staff's conclusions and recommendations basically criticized the lack of support for many of the contentions DP&L made in their application and recommended the certification of the route not preferred by DP&L. Regardless of this recommendation, at this writing the adjudicatory hearings have not taken place, and thus a final decision is still somewhat in the future.

SITING CRITERIA

The following criteria for site selection were given in the FEIS:

Engineering -- must meet certain minimum physical requirements for

1) Topography,
2) Geology,
3) Hydrology, and
4) Location.

Environmental--

1) Aesthetic impact,
2) Compatibility with surrounding land use,
3) Amount of population displacement, and
4) Environmental effects of plant operation.

Economic--

1) Capital costs;
    a) Site development,
    b) Condenser cooling system,
    c) Coal supply, and
    d) Ash disposal and stack emission control facilities;
2) Adjustments made for differences in local wage rates, benefits and taxes;
3) Overhead costs;
4) Land acquisition costs;
5) Transmission costs; and
6) Capitalized fuel and operating costs.

The list of candidate sites was first screened environmentally, then subjected to a more detailed engineering and economic analysis.

PUBLIC PARTICIPATION

Initial Announcement

When it was first reported that options were being acquired at the future Killen site, the prospective developer was not identified. Rumors of DP&L's involvement were later fired by a news story in the October 18, 1973 Manchester Signal, which announced the East Bend plant and stated that DP&L was planning to build a sister plant. The article stated that DP&L was not originally believed to be involved in the Adams County land purchase since such a development in the proximity of the Stuart plant would give them more than "10% of their total capacity at one site," a situation "power companies frown at."

A few weeks after this story, DP&L's Public Relations Officer, speaking at a local Lion's Club meeting, indicated that an expansion announcement was forthcoming. This took the form of a News Release carried by the Signal on November 29 and a luncheon meeting at Manchester High School the same day. DP&L, as they did to announce the Stuart Station, sent formal invitations for the luncheon to village mayors, members of Council, organization presidents, newsmedia, and others. Vernal G. Riffe Jr., Speaker Protem of the Ohio House of Representatives, acted as Master of Ceremonies and introduced speakers Robert Killen, DP&L chairman and president, State

Senator William H. Mussey, State Representative Harry C. Malott, and School Superintendent Donald Dowdy. Telegrams from Ohio Governor John Gilligan and U.S. Representative William H. Harsha were read. Although plans were presented for the $400 million (at that time) 1200 MW plant and the environmental safeguards to be used, the exact location of the boilers on the huge plot DP&L desired was not divulged, probably since an option on the Ralston property had not yet been acquired. The *Signal's* coverage of this event reported that this announcement was not received by those present with nearly the same enthusiasm as was the announcement of Stuart Station in 1965.

Written and Public Hearing Comments to the DEIS

Other than a USEPA review of the Environmental Assessment Report in the Spring of 1976, no substantial public participation occurred until written comment on the DEIS was solicited in July through September, 1976. Public comment was again opened surrounding the Public Hearing held in January, 1977. The following are the most important areas of comment.

1) *Water Resources*. Many varied comments were made by the U.S. Department of Interior, the USEPA, and its equivalents in Ohio and Kentucky. Major emphasis was placed on the suspected inability of the proposed treatment scheme to meet NSPS requirements, and the need to assure that the groundwater aquifer would be protected. DP&L replied that the plant construction had either been initiated prior to, or changes had been made to meet, the set of NSPS cited, and that the groundwater would be protected.

2) *Air Resources*. Issues over air quality drew comments from many of the interest groups and private landowners involved, as well as from the environmental protection agencies. Key comments concerned the need for a flue-gas desulfurization plan, the opposition to new construction

stemming from the regional air quality problems, and the need for consideration of commercial uses of fly ash. Although DP&L replied with assurances that a supply of low-sulfur coal could be obtained they also had made provisions for desulfurization if ultimately needed. Killen, they said, would contribute little to the ambient air problems, which were being studied by ORBES. Finally, DP&L did not anticipate any large, short term commercial use of fly ash since enormous quantities were already being produced.

3) Regional Impacts. Regional impacts, the major theme of comment against the East Bend plant, again arose at Killen, and were brought up by many of the same groups. The interest groups commenting were unanimous in their cry for an evaluation of the regional setting Killen was being placed in prior to the granting of a permit to construct. Since Killen was far from the Cincinnati-Madison-Louisville axis of interest in this issue, it wasn't given a high priority by these groups. The nearest Save the Valley chapter, Maysville, gave only passing attention to the Killen plant since they were involved at the time with a lawsuit over the Spurlock plant west of town. In addition to these groups, who were already actively involved in this issue, several individuals and the Kentucky DNREP also pointed out the need to look at regional impacts. The response to these comments in the FEIS mentioned ORBES, and noted that ambient air and water quality standards, which Killen would meet, established permissible cumulative impacts.

4) Transmission Lines. Concern was expressed by several parties, mostly from those owning land in Adams County, over the lack of information about transmission lines. This was primarily due to the impact these might have on personal property, several Nature Preserves in the

area, and Ohio Brush Creek, a candidate Ohio Scenic River. At the time of the public hearing, DP&L had chosen seven alternative routes, but would not state what the two preferred routes were until an application was submitted to the OPSC in February. Even though this application was for the DP&L preferred routing, DP&L claimed at a January 12 meeting with several of the people concerned about these scenic areas that no routing decision had been made by them at that time. The FEIS, however, did give the guidelines for right-of-way selection and outlined measures to be taken to mitigate environmental impacts. The full results of the transmission line environmental study, required by OPSC, could not be placed in the EIS, it was contended, since it would significantly delay approval of the DA permit.

In both cases later considered by the OPSC, the major issue raised was the loss of land resulting from the construction of the lines. This was particularly true in the Killen-Bath case, where most of the routing was through prime agricultural land. One suggestion to mitigate this, recommended by the OPSC staff, and involving no extra cost to DP&L, would be to use single steel poles rather than the lattice towers commonly used, thus substantially reducing the area removed from production.

5) Vegetation and Wildlife. The most frequent comment in this area, expressed by OEPA, the Ohio Biological Survey, and one of the non-local property owners, expressed concern over several rare and endangered species and their habitat located near the Killen site, especially in the nearby nature preserves. No special impacts on these species, however, were anticipated by DP&L or the COE above those on animals in general. In addition to this, DP&L maintained that the report for OPSC would discuss impacts from transmission lines.

6) Nature Preserves. Several land owners and the Cincinnati Museum of Natural History, which administers several areas purchased by the Nature Conservancy, were particularly concerned over the impact on these areas from visual elements associated with the plant and from air pollution. DP&L maintained that the DEIS had adequately addressed these impacts and found them to be minimal to nil.

7) Lack of Public Information. The issue which both aroused the most indignation and reduced the participation effort was a combination of factors which hindered the public information process. When the DEIS was issued, several parties, including the Nature Conservancy and several of those interested in its lands, requested that a public hearing be held. The parties making this request, however, were inadvertently left off the mailing list of the COE's Notice of Public Hearing, and thus only found out about the hearing a few days beforehand, if at all. Also, the only paper in Adams County which chose to announce the hearing was the Manchester Signal (even though the paper itself was not on the COE's mailing list). To remedy this situation, the COE informed these parties and others mentioned by hearing attendees that the hearing had been held and that the end of the comment period for the hearing was being extended from January 29 until February 11. This allowed most interested parties to make their comments. Only the Nature Conservancy did not have enough time to prepare comments on the DEIS.

8) Statements in Favor. During the comment period on the DEIS and at the public hearing, only two or three local landowners expressed direct opposition to building the Killen Plant in Adams County. Other commenters wished to insure that all issues, especially regional power plant development and air pollution, were more fully addressed and considered before a permit was granted. Federal and State agencies merely

offered suggestions for improvements to the DEIS. At the public hearing, only DP&L Environmental Engineer Harold Fox and Paul Baldridge, Assistant Director of the Ohio Department of Economic and Community Development gave their wholehearted approval of the plant, Mr. Baldridge emphasizing the jobs which would be created or maintained by the electricity expected from Killen Station.

Comments on the FEIS

A 30-day comment period on the FEIS began when the document was listed in the October 21, 1977 Federal Register. All such comments were received after this period, however, and thus after the decision had been made to issue the DA permit. These comments were from the Ohio and Kentucky environmental agencies and from three Federal agencies. The only substantial comments were made by USEPA, who reaffirmed their suspicions about whether the waste water treatment system was the most efficient possible, and stated that the details of the monitoring system for air and water discharges should be made a part of the DA permit. DP&L supported the ability of their treatment scheme to meet applicable standards, said that they would try within the limits of their present contractual obligations to improve the system's efficiency, and were coordinating with OEPA to provide a NSPS water quality monitoring system.

FINDINGS AND CONCLUSIONS

1) Public participation in the Killen siting process was hindered by the lack of knowledge about participation opportunities.

Specifically, a combination of little local media coverage and the COE's oversight of several significant groups who should have been directly contacted hindered the public's participatory role at the COE DEIS public hearing. The greatest oversight was the failure to inform the very parties who requested the hearing in the first place. It is unclear, however, if better information would have significantly increased attendence considering that the meeting was held over 30 miles from the plant site following a severe blizzard.

2) The DEIS evaluation process, which included the COE public hearing, occurred at a time when significant changes in the Killen siting decision would have meant large financial losses by the utilities.

When site clearing began on the Killen site, the environmental studies were still in progress. The DEIS was not issued, in fact, until two years after the beginning of construction. Even though construction was slowed down during this period, contractual commitments remained to inhibit major changes in the project based on the findings of the environmental studies. Thus by the time certain publics became involved (including state and federal agencies), significant financial investments had already been made at the Killen Station site.

3) Many of the defects in the regulatory process under which Killen Station was granted a construction permit have been corrected through the formation of the OPSC.

When Killen was permitted by the State of Ohio in 1974, there were no provisions for assessing the plant's need, effect on its environment, or modelling impacts on air quality prior to start of construction. Under present regulations, not only do these areas have to be evaluated for site preferred by the power company, they must be discussed to the same degree for an alternative site. The final choice rests with the OPSC, not the power company, and the decision is based on extensive public review of the facts of the case.

4) Present public information methods used by the OPSC are vastly superior to those in use when the Killen plant was considered by state officials.

No evidence of a public notice, press release, or public meeting about the OEPA Permit to Install proceedings on Killen were found. The OEPA's decision was, for all intents and purposes, closed to both the public and other agencies. In contrast, the Killen-Bath transmission line application to the OPSC was announced in full-page newspaper ads giving information about the project, the location of local public officials who received copies of the application, details about a series of public meetings and various ways to participate in the case. Without debating the effectiveness of these methods, it is easily demonstrated that the siting process is now more open and attracts more participants.

5) Proper protection of archaeological resources was not given during site preparation.

A member of the Archaeology Division of the OHS complained when interviewed that the regulations in effect when Killen was begun did not give his personnel an adequate opportunity to find and protect archaeological sites endangered by construction. Consequently, their efforts lagged behind DP&L's site preparation schedule, leading to the disturbance of land suspected of containing relics. Although the most important sites were apparently identified and to some extent protected, the OHS regretted that present OPSC rules requiring archaeological investigations as part of a permit application were not in effect at the time.

6) None of the most active participants in the DEIS evaluation process were permanent Adams County residents.

Adams County landowners who wrote to the COE or spoke at the COE public hearing maintained permanent residence outside the area, primarily in Cincinnati. In many cases, the primary goal of their living part-time in Adams County was to escape from city life then and retire there later. They thus saw the impacts of Killen Station in a different light than those full-time Adams County residents who were, in general, less well off economically and less educated. In addition, many such absentee landowners were associated with the Nature Conservancy and were concerned about Killen due to its suspected impacts on Nature Conservancy lands, some of which were donated by these same people.

7) The concerns of Adams County residents are very much different from those of residents of the counties affected by transmission lines related to the Killen plant site.

Although farming is important to the depressed Adams County economy (especially SO_2 - sensitive tobacco), local concerns related to power plant siting chiefly center around the unique natural areas which abound there. Thus the protection of these areas and, in general, of the undeveloped nature of this area is a primary local concern. Farther north, however, the level land has been cleared for large farming operations. Interference with farming operations by transmission lines is the most recognized impact to these people. In both places, however, the major objections are related to impacts on people very near the facility, rather than on the region as a whole.

8) Most people living adjacent to the plant site were never directly officially notified about any event surrounding the development of Killen.

To this day, no aspect of the Killen Station development has been discussed with those most directly visually and physically affected by it -- those living immediately across the road. Rumors were all that were heard when land was purchased, and rumors are all that are heard now. Apparently the only official notices on any action surrounding Killen were from the COE, and those were given only to those with land abutting both DP&L's property and the river. These people, however, are probably the least impacted of any of the residents surrounding the plant site since they are the farthest from construction activities.

9) DP&L, in addition to not informing their neighbors of their activities, does not now enjoy a cordial relationship with many of them.

For example, one family living across the road from Killen told of being denied a request to remove wood for their personal use from land cleared by DP&L. Instead, this timber was burned. The same people have been attempting to sell their home, but can't interest DP&L in making an offer, even though the power company owns land on all sides of them. Also, instead of resolving problems directly with DP&L, such as that of fugitive dust, state agencies such as OEPA have been called in to mediate. The only neighbors who appear to be benefitting from the presence of the plant are the owners of two nearby restaurants.

10) Media coverage has been limited by the lack of information from DP&L and the various permitting agencies.

As a rule, small weekly newspapers such as those serving Adams County lack the manpower to investigate stories. Thus they rely on news releases for much of their information. When Stuart Station was built, the media was kept abreast of the plant's development through numerous news releases and conferences. For Killen, however, security has been tight, and official news about the project has been released infrequently. Therefore, after initial speculation about the project was settled by DP&L's announcement of the plant, little news about the project has been reported. Thus, when an announcement such as that of the COE hearing was made, there was little previous knowledge about the issue. This may have contributed to the lack of involvement by local citizens.

11) County officials agreed with DP&L's early policy of not releasing information about the plant to the general public.

The Adams County government was privileged to early planning information concerning Killen, but did not release any information until DP&L formally announced the plant. This was because it favored the plant's construction and feared that early public debate over the project may have caused DP&L to abandon their tentative plans. Part of local government's satisfaction with the project may have been due to the courtesy extended by, and receptivity to change of, DP&L, both in the Stuart and Killen projects. Also, due to its past experience, the County recognized the revenues and jobs which Killen would bring to its rather depressed economy.

12) Today, there are mixed feelings about the Killen project locally.

Of those contacted, only E. H. Roush, the county official interviewed, was totally in favor of Killen's construction. Bill Woolard of the Manchester Signal recognized the problems which the wealth caused by developing Stuart had presented to the poor Adams County area, and feared Killen would worsen conditions if not handled differently. Daniel Ralston, the last holdout of the Killen landowners, states that now, if he had his way, there would be no Killen Station since he would have fought it to the end. On the other hand, another former Killen property owner, Karl Kirshner, accepted the loss of his land and felt that most of his neighbors had accepted the Killen Station. The Cincinnati-based Adams County landowners who spoke at the COE hearing, however, have not yet accepted Killen or the proliferation of plants in the area. They did recognize that many of their concerns were addressed, the most important being the location of the transmission lines away from the nature preserves, but they would still like to see a provision for scrubbers.

13) Those who spoke against the plant at the COE hearing now feel that their efforts were entirely futile.

Even after writing DP&L, reading the DEIS, meeting with other concerned parties, and speaking at the hearing, Helen Black felt a "feeling of general helplessness". She felt she had no influence since it was a "foregone conclusion" that DP&L would proceed as planned. Stanley Rowe, while recognizing that DP&L had listened to the concerns of the people when choosing the right-of-way for the Killen-Stuart/Marquis line, felt that his actions were "absolutely futile" since there was "no effective way of controlling issues". "I felt better getting it off my chest", he did admit, however.

14) The new OPSC public participation methods have been somewhat effective in acquiring information about the proposed Killen transmission line right-of-ways.

For gathering obscure, but important information about the proposed alternative right-of-ways, the public meetings held by OPSC were a success. They also served to uncover the concerns of many of the impacted landowners before the final routing was chosen. This appears to be leading to routing revisions and conditions on the equipment to be used. What has not been resolved is the opposition to the line by those whose land will be crossed. There also appears to be a lack of understanding of the need for a new right-of-way. Since these proceedings are still in progress, however, such resolution and understanding may still be reached.

15) Approval of a separate DA permit for the construction unloading dock would have allowed a much more intensive capital investment to have been made at the site, and would have further compromised the spirit of NEPA.

Environmental studies took as a baseline the state of the site following its abandonment by the original landowners, and even reflected the initial site clearing underway while they were conducted. It is clear that if materials requiring barge transport were allowed on site, a large portion of the plant (except for river structures) could have been built before an FEIS was issued. While the usefulness of an EIS as a resource for planning was doubtful in this case, the spirit of NEPA would certainly have been violated if this separate permit had been issued. As it turned out, the slowdown in load growth delayed the need for the construction unloading dock and the plant itself until after the EIS process was complete, even though DP&L kept insisting that construction had to be speeded.

16) Had there been an authority to rule on the need for new facilities when Killen was permitted by OEPA, such an action may have been denied.

Presently, the first Killen unit is not needed until 1983. Projections made when the plant was originally announced called for such need in 1978. If the powers now vested in OPSC had been available, it may have been ruled that beginning construction in 1974 was not necessary. Daniel Ralston's report that DP&L wished to begin construction to avoid an impending new "EPA regulation" increases such speculation. If this new regulation was the impending OPSC, DP&L may have rushed construction to avoid the more costly and time-consuming requirements this would have entailed. The fact that many plants which started construction at this time were later delayed, could be attributed in part to a desire to avoid soon-to-be-effective environmental regulations, or could be due to a mis-estimation of the intensity of the load growth slowdown.

17) Information on the detailed rationale behind the choice of the Killen Station site was not made available by DP&L.

DP&L, as did CG&E on the East Bend case study, chose not to answer a questionnaire sent to them which would have provided such information, again based on the claim that such information was already in the public record. Because of this, the case study presents only limited information on the actual decision process and detailed siting criteria used to select the Killen site, based on the discussion contained in the FEIS.

ABBREVIATIONS USED: KILLEN CASE STUDY

ALJ	Administrative Law Judge, assigned by the OPSC to preside over the evaluation of evidence submitted concerning a permit decision by the OPSC;
CAI	Commonwealth Associates, Inc., author of the siting and environmental report for the East Bend Station plant, also used to select the Killen site;
CEQ	Council on Environmental Quality, responsible for ultimately receiving the DEIS and FEIS;
CG&E	The Cincinnati Gas and Electric Company, an investor-owned public utility, joint owner of Killen Station;
COE	Corps of Engineers, Huntington District, the lead agency for preparing the EIS and determining whether to issue the DA Permit;
DA	Department of the Army, whose permit is required for construction of structures in navigable waterways;
DP&L	The Dayton Power and Light Company, an investor-owned public utility, joint owner of Killen Station and responsible for its licensing and construction;
EFS	Energy Facility Siting;
EIS	Environmental Impact Statement, where DEIS is Draft EIS, and FEIS is Final EIS;
kV	kilovolts;
MW	Megawatts;
NEPA	National Environmental Policy Act of 1970;
NPDES	National Pollutant Discharge Elimination System; which sets effluent limitations on plant wastewater streams;
NSPS	New Source Performance Standards, which set effluent limitations on the air waste streams;
OEPA	Ohio Environmental Protection Agency, responsible for the Permit to Install, under which a review of air and water pollution control and solid waste disposal systems was conducted;
OHS	Ohio Historical Society;

OPSC	Ohio Power Siting Commission, a new, centralized one-stop state permitting agency for power plants, major energy facilities, and transmission lines;
ORBES	The Ohio River Basin Energy Study, a three-year study by a university research consortium on the effects of development of energy facilities near the Ohio River;
PAC	The President's Advisory Council on Historic Preservation, the federal equivalent of the OHS;
PSD	Prevention of Significant Deterioration, which limits the amount of air pollutants any one source can contribute;
SPDES	State Pollutant Discharge Elimination System, the name given to the permit issued under the NPDES by power granted to the State of Ohio by the USEPA;
USEPA	United States Environmental Protection Agency, Region V, Chicago, Illinois, responsible for coordination during EIS preparation on Killen Station.

Chapter 5. MOUNTAINEER CASE STUDY: WEST VIRGINIA

INTRODUCTION*

The third case study plant is the Mountaineer plant, originally designated by the applicant utility as Project 1301, a single 1300 MW coal-fired unit in Mason County just outside New Haven, West Virginia (1970 population, 1149). It is located 243 miles downstream of Pittsburgh, Pennsylvania on the south bank of the Ohio River. The nearest major cities; Parkersburg (39 air miles), Huntington (53 air miles), and Charleston (45 air miles); are located quite far from this rural, topographically rugged area. The plant site itself, however, is located in a wide strip of bottom land along a large bend in the river which has previously attracted three other coal-fired electric generating stations: the Philip Sporn Plant (immediately adjacent) in West Virginia, and the neighboring James Gavin (10 air miles) and Kyger Creek (10.6 air miles) plants in Ohio. In addition to this, the John Amos Plant is 24 air miles away on the Kanawha River.

Mountaineer and the other plants mentioned above are all owned by the huge American Electric Power Company (AEP). Kyger Creek is operated solely by the AEP subsidiary Ohio Power Company (OPC). The other three, including Mountaineer, are operated either solely or jointly with OPC by another AEP subsidiary, the Appalachian Power Company (AP). The latter company serves about half of West Virginia and part of Virginia. Each plant, however, is tied directly into the entire AEP system, and thus the power from any plant could be used anywhere in the AEP system. Originially scheduled to go on line in 1977 at a cost of $420 million,

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*Abbreviations for parties named in this case study are defined where first noted and are summarized on page 111.

Mountaineer has been subject to delays resulting from a slowdown in the growth of electric demand which began in 1973-74, and the inability of AP, which is financing its construction, to obtain a rate increase from the West Virginia Public Service Commission (WVPSC). This has delayed the start-up date to the Winter of 1980-81. Plans indicate that an identical unit will be installed on the site at some future date.

The 3.5 million tons of West Virginia low-sulfur coal needed each year at Mountaineer will be shipped by barge on the Kanawha and Ohio Rivers to the plant site. Although the exact source of the coal is not yet known, AEP owns several mines which are expected to be utilized (Charleston Newspapers, 2/28/79). No sulfur removal will be required, but removal of fly ash from the flue gas will necessitate the installation of an air reheater and electrostatic precipitator. The fly ash will be conditioned and shipped in off-highway vehicles to a valley disposal site two miles away in the nearby hills, where it will be compacted, covered with topsoil, and reseeded. Bottom ash will be ground and transported by jet water pumps to one of two on-site disposal ponds, each with a two year life, which will be excavated when full. The ash thus collected is to be taken to the disposal area. Dispersion of the remaining pollutants in the gas stream will be facilitated by an 1100 foot tall stack.

Make-up water will be drawn from the Ohio River, demineralized, and used for various plant activities. These include the replacement of evaporative loss from a 500 foot tall natural-draft cooling tower and the transport of waste chemicals to a treatment pond. Treated water, supplemented by make-up water, will then be recycled, primarily for bottom ash transport. Potable water will be drawn from on-site wells, and sanitary wastes will be treated in the New Haven treatment plant, with upgrading to secondary treatment financed in part by a $50,000 grant from AEP.

PROCEDURES

Site Selection

AEP's site selection process consisted of two steps. First, an inventory of available sites was developed and maintained based on several general characteristics. Apparently this was accomplished some time before the Mountaineer site was chosen, since AEP claimed the sites considered were all under their control. In addition to the Mountaineer site, undeveloped sites along the Ohio River in Henderson County, Kentucky, and Hanging Rock, Lawrence County, Ohio, and an expansion of the existing Breed Plant along the Wabash River in Sullivan County, Indiana, were considered.

The second step of the selection process was the evaluation of those inventoried sites capable of holding the required generation capacity. This was based on a number of specific factors (which were not given in the FEIS). It was decided in this case that the Breed site would be used for some other future expansion; that the Kentucky site was inappropriate due to the lack of a fuel supply by the startup date and the need for a large investigation of the transmission lines required to tie it into the AEP network; and finally that the Ohio site was somewhat inferior to the New Haven site chosen.

Land Acquisition

Due to the proximity of the Sporn plant, begun in 1950, AEP recognized for many years that the present Mountaineer site was "potentially suitable for power plant development" (AEP written statement to author). As early as 1963, AP was purchasing plots of land as they became available and leasing them to local farmers. One of the largest land purchases, made in 1972, was not then intended for a plant at all, but according to the deeds was for a transmission line right-of-way. This forced the relocation of several families.

Instead of a line, however, the Mountaineer power plant was proposed a year and a half later. This was announced at a press conference in Charleston on January 24, 1974 with West Virginia Governor Arch Moore and AEP Chairman Donald Cook; and also at a dinner meeting in Point Pleasant, the Mason County Seat, on February 7. This local meeting was attended by over 100 civic leaders, who heard AP Executive Vice President John Vaughan describe the project. An informal question and answer period of over one hour then followed. After these announcements, options to buy the remaining required land within three months were sought, with purchase of most of the land occurring in April. These actions were performed by AEP's realtor in all local land purchases, the Franklin Real Estate Company of Pennsylvania. The only resistance encountered was from three property owners, members of the Roush family, who subsequently became involved in condemnation hearings. In West Virginia, a board consisting of local property owners of land similar to the condemned land is appointed to determine a fair value for the land in question. Their decision in this case, however, was disputed by AEP, which appealed the case. The Roush's were advised by a local lawyer that the costs incurred in an appeal process would diminish the value of their final settlement to a point where the amount AEP was currently offering would be greater overall, and thus they settled out of court.

Certificate of Convenience and Necessity

AEP applied to the WVPSC for a Certificate of Convenience and Necessity for Project 1301 on the day of the Governor's Press Conference--January 24, 1974. This case, No. 7836, was reviewed by the WVPSC staff based on the description of the project and the need for the plant as presented by AP in their application. On February 27, the Commission issued a legal order which AP was required to publish. It stated that notice of AP's application appear in the weekly Point Pleasant newspaper once a week for two consecutive weeks, and that objections to the application could be filed within 10 days of the last of these two weekly publications. No objections were received, and thus the WVPSC issued the desired Certificate on March 20, finding that formal hearings were not necessary. It is interesting to note that the WVPSC Engineering Division, while recommending granting the certificate, noted that electric demand had been leveling off in the preceding few months. Regardless of this, they suggested the project begin, due to the amount of time construction would take, and the unknown length of time the growth slowdown would persist.

State Air Emission Source Construction Permit

A permit from the West Virginia Air Pollution Control Commission (WVAPCC), required before construction could begin, was also applied for on January 24, 1974. The information submitted was evaluated to determine whether ambient air quality standards would be violated. It was determined that this would not occur if the NSPS were followed. Immediately after the application was filed, AP was required by West Virginia law to publish public notice of this action, to be followed by a 30 day public comment period. Although no request for a hearing was generated, the WVAPCC Director Carl Beard felt that a project of this magnitude should be presented to the people, and thus scheduled a meeting in New Haven for April 17. Notice of this meeting was carried in the Point Pleasant newspaper. Many of those attending were workers on strike from the Sporn plant at the time. A flyer containing technical information about the air pollution control system was distributed at the meeting, and AP and WVAPCC officials spoke.

No major objections were noted, and the WVAPCC action on this case, required within 90 days of the receipt of a complete application, was to grant the permit on April 24.

Prevention of Significant Deterioration Permit

Construction of Project 1301 began soon after the WVAPCC permit was granted, well before the PSD regulations took effect in June of 1975. The electric demand growth slowdown, however, first caused a construction slowdown in mid-74 and finally a suspension of the project by year's end. It was not until June, 1977 that a full construction program resumed. The possibility of requiring PSD thus arose since an 18 month break in construction would have subjected AP to these regulations. In apparently unrelated letters to AEP in 1976 and 1978 from EPA's Enforcement Division, and in 1977 from the Air and Hazardous Materials Division, this possibility was suggested. Enough evidence was presented to USEPA Region III supporting AEP's contention that substantial construction and contractual obligations had occurred during this period that they decided in mid-1979 that PSD did not apply.

DA Permit and EIS Preparation

Again in this case, the COE was responsible for preparing the EIS as a requirement for the DA Permit covering the coal docks, material unloading facilities, the makeup water intake and discharge structures, and the relocation of Little Broad Run, a small stream crossing the plant site. Preliminary contact was made by AEP to the COE regarding the requirements for the permit in early 1974. This included a meeting between the two parties and an on-site inspection by the COE. Based on this, AEP filed an application for the required facilities on July 12. To help meet the construction schedule, the COE stated at the time that the material unloading facility and the relocation of Little Broad Run would be evaluated outside of the EIS process. Only the relocation project was so considered, however, and was presented in an August 29 Public Notice (No. 74-52). This drew comment from the US Fish and Wildlife Service on the design to be used for the relocation, necessitating a meeting in October attended by representatives of the COE, AEP, AP, USF&WS, and WVDNR to resolve this point. The DA permit for the relocation of Little Broad Run was issued January 8, 1975, allowing site preparation work to proceed.

Meanwhile, the general environmental studies to assess the impact of the entire project, performed by AEP's consultant WAPORA, and the air dispersion studies performed by another consultant, Smith-Singer Meteorologist, Inc., were conducted from late 1973 through mid-1974, and reported on shortly thereafter. Much of the information used was acquired at facilities already built for AEP plants in the area. The results of these studies were then molded into a DEIS by the COE, WAPORA, and AP; sent to the CEQ and 22 other parties on October 20, 1975; noted in the Federal Register on November 7; and announced in a November 3 news release and a November 13 Public Notice. Within the customary 30 day comment period following this notice, letters were received from 14 Federal and State agencies, but no comment or request for a hearing from private interest groups or individuals was made. However, only the New Haven Mayor, an adjacent industry, and a local resident appeared on the COE mailing list. The resident now states that he only vaguely remembers the receipt of any information. Since no hearing was requested, none was held and thus, after the comments received were answered, the FEIS was issued and noted in the Federal Register in May, 1977. The only party registering a complaint at this time was USEPA which, while not objecting to the issuance of the DA permit, felt that stiputations should be placed on it to insure that their questions would be answered. These were made and the permit was issued in September, 1977.

Even though there were only a few commenters during this period, a relatively long time passed between the release of the DEIS and FEIS, and again between the FEIS and the DA permit. These delays can be attributed to negotiations between USEPA and AEP on the results of the air pollution studies and the methods by which they were obtained. The issues which arose during this period will be discussed later.

WVDNR Water Pollution Control Permit

In an action termed an "easy permit" by the WVDNR, Division of Water Resources, Industrial Waste Section official who prepared it, AP received a permit "to acquire, construct, install, modify or operate a disposal system" in, by agency standards, the record time of nine months. The permitting action was initiated on February 1, 1977 when AEP requested application forms from WVDNR. A completed application was received June 30 and revised on August 30 after a request to AEP for additional information. A public notice, placed in the Point Pleasant Register during September, drew no public comment during the 30-day reply period and, therefore, no hearing was held. Water Pollution Control Permit No. IW-5969-77 was issued November 1 and will run through November 1, 1982.

NPDES Permit

In West Virginia, as in Kentucky, the USEPA still retains the authority for issuing NPDES permits. For the Mountaineer Plant, this was applied for on January 4, 1979. At this writing, little action has been taken by USEPA (Philadephia) toward evaluating this permit, which must be obtained prior to any wastewater discharge.

Transmission Lines

In the Killen case study, the most controversial facility associated with the project was the transmission line. This was even more profoundly so in the Certificate of Convenience and Necessity, Case No. 9003, before the WVPSC on transmission lines for Mountaineer. While the plant itself was, for the most part, sited and licensed both quietly and quickly, the proposal to build the transmission lines drew heavy opposition once it became known. Several steps led to public recognition and reaction.

On May 9, 1977, AP filed an application to construct a 33 mile long, 765KV transmission line south from an existing line between the Amos and Gavin plants to AP's Culloden Station in Cabell County, West Virginia. While this so-called Culloden-Gavin line doesn't appear to be associated with Mountaineer by name, its express purpose was "to reinforce the existing transmission system in the area of that plant (Mountaineer)" (WVPSC Order of May 18, 1979, p. 6). No mention of the need for this line was made in the EIS, however. Only a brief description of three short lines from Mountaineer, tying it into the existing transmission system, was given in the EIS. Also not mentioned in the application to WVPSC is another line approved before application was made for the Culloden-Gavin line, which extends transmission from Culloden to southern West Virginia.

After application was received by the WVPSC for Culloden-Gavin, along with a 74 page environmental analysis of the route, AP was required to publish notice stating that a 15 day period was open to receive written requests for a hearing. Although no requests were received, the Commission still held a hearing in Charleston on August 31. This was for AP to defend its application before the Commission. Notice of this meeting, published at the expense of AP, stated that anyone wishing to,could file an objection to the approval of the application on or before the hearing date. Not all matters could be addressed at this time, though, and the hearing was continued on September 13, still with no intervenors or protestants present. Thus tentative approval to construct this line was virtually assured.

What neither party knew throughout this process was that the route of the lines passed through land owned by several lawyers, engineers and others who had moved away from nearby Charleston to a group of adjacent farms near the small community of Hurricane. They hadn't heard of the proposal until one of them happened to glance at a story in the Charleston newspaper about the September 13 hearing while carrying out a stack of papers. This indicated the line would pass near their land. Further checking found that the line would actually pass through their land. Their concern was heightened by a recently broadcast "60 Minutes" television segment which outlined the health effects of the electrical field created by such lines. Other land owners along the route were informed by this group and on October 4, a petition was filed which requested permission to intervene and reopen the record because, the petitioneers claimed, they did not have actual notice of the September 13 meeting. The Commission agreed on November 29, and set a hearing for January 25, 1978 in Charleston to allow cross-examination of AP's witnesses and introduce new evidence. AP was ordered to publish notice of this meeting. In the interim, other parties asked to intervene, and thus in all 21 intervenors (individuals or families) entered the case.

Fourteen protestants testified at the January 25 hearing, and additional testimony was given at hearings on March 14-17, March 28-31, and April 6-7. Briefs and proposed orders were submitted by AP and the intervenors, and oral argument was presented before the Commission on June

16. In all, 2203 pages of transcript and about 72 exhibits were recorded from testimony and cross-examination of 56 protestants, the intervenors and their nine witnesses, AP and their nine witnesses, and the WVPSC staff and their one witness. After evaluating this voluminous amount of information, and conducting inquiries of its own, the WVPSC granted the desired certificate on May 19, 1979, but subjected their approval to various conditions, restrictions, and modifications. The issues raised, and the WVPSC findings and solutions will be discussed in the Public Participation section of this chapter.

The Commission ruling did not stop the intervenors, however. They appealed the decision to the West Virginia Supreme Court on August 20, 1979. Litigation is underway at the present time on whether the Court will hear the case.

SITING CRITERIA

The differences in locale between the Mountaineer plant and East Bend and Killen Stations should be noted. While all three are in basically rural locations, Mountaineer was sited in an area already containing several other AEP plants of equal magnitude. This seems to run counter to ECAR recommendations that a large portion of a company's generating capacity not be in the same area. In addition to this, the AEP planners did not use one of CG&E's and DP&L's primary environmental siting criteria, that of locating where the least number of people would be impacted. The plant was placed on the corporate boundary of New Haven, abutting a modern subdivision. It is also apparent that AEP, due to their large service area, had a larger region in which they could site plants, and didn't require a formal study due to the number of prospective sites they already controlled within this region. Thus while most of the basic criteria for selecting the Mountaineer site were the same as for the other plants, the setting in which these criteria were applied varied.

The criteria used to select first the inventory of alternative sites and then the Mountaineer site, included, according to the FEIS:

1) Power system reliability;
2) Availibility of an adequate fuel supply;
3) Environmental considerations;
4) Economic factors; and
5) Specific site characteristics and physical requirements.

One important consideration specifically stated in the FEIS is how well the plant would tie into the existing transmission network.

PUBLIC PARTICIPATION

With the exception of the hearing held by the WVAPCC, the only comments about the project were from Federal and State agencies. Only in the transmission line case, and there only in an area 40 miles away from the plant site, did any members of the public become actively involved in a licensing procedure. This is unlike the situations at Killen and especially East Bend where, if only for a limited time, impacted parties pursued a role in the decision making process.

There was a notable absence of issues and participants in the Mountaineer plant licensing process. Those few issues which did arise, and the forums in which they were aired, are discussed below.

AEP Announcement of Plant

The mechanics of AEP's announcement have been mentioned previously. The initial announcement at the Governor's News Conference in January, 1974, generated press coverage, and thus provided the first solid indication of AEP's plans. The first real exchange of dialogue between the power company and local interests occurred at the Point Pleasant dinner meeting the following month. According to one person present, John Thorpe, Mayor of New Haven at the time, the group of civic leaders present accepted the news very well, expressing no public opposition. He felt that one reason for this was the willingness of the power company officials present to explain the benefits of the plant, the environmental safeguards to be used, and to informally answer questions after the formal presentation.

Apparently the promise of jobs and progress through building Mountaineer was enough to override some of the more negative impacts resulting from similar major developments in the area in the past. For example, development of the Sporn plant spurred a housing boom in the area during construction. After the construction workers left, however, the bottom dropped out of the market. In contrast, the housing market has been "kept tight" by local developers during the Mountaineer construction, and thus housing surpluses are not expected later according to Mayor Thorne. Another effect brought about by the Sporn plant was a series of labor difficulties, including the strike in progress when Mountaineer was announced. Since then, however, the union has been voted out,and the workers seem to have been satisfied with their treatment by AP. Finally, an air pollution problem is present in the area. In fact, during the 1973-1977 period,the WVAPCC was waging a battle with AP over the means of meeting the air quality standards, with Sporn being the last plant in the state to come into compliance. Pollution episodes seem to be tolerated locally, however.

WVAPCC Hearing

As mentioned previously, one group represented at this hearing was the striking Sporn union. It is not exactly clear, though, how much influence they had over the proceedings. WVAPCC Director Beard recalls only a small group of strikers present, there solely to harass AEP. Mayor Thorne contends, however, that non-strikers also attended this "calm" meeting, and that both pros and cons of the project were discussed. Issues raised included potential elevated humidity, slickened highways, devalued properties and the employment generated by the project. There is also some question as to how large the actual attendance was. While the FEIS reported that only 20 people were present, Mayor Thorne remembers a packed house, at his estimate between 100 and 125 people.

Because of these divergent accounts, it is difficult to judge what the results of this hearing were. What is known is that, for all intents and purposes, neither the local media nor their readers had anything to publicly say about the project afterwards. Mayor Thorne feels that the plant is more accepted now since the employment provided is a steadying influence over the economy. This is in spite of the fact that traffic problems exist and the expected economic boom has not occurred.

Comments on the DEIS

Federally, the agencies submitting the largest number of comments about the DEIS in late 1975 were the USEPA and the Office of the Secretary of the Department of the Interior, while on the state level the WVDNR and State Geologist were the most vocal. The major comments were in the following areas.

1. Fly ash disposal system. All of the above parties roundly criticized the lack of detail in the DEIS on the water-propelled fly ash disposal system. This led to doubts about the system's ability to meet NSPS. By the time the FEIS was issued, however, AP had changed their proposal to a dry fly ash disposal system and thus, they contended, these questions did not require a reply.

2. Air Quality. Critics, led by USEPA, very vehemently objected to the poor analysis of the project's contribution to regional ambient air pollution. In response, the DEIS included 47 pages of new information from studies by AEP's consultant, Smith-Singer Meteorologists, Inc. The omission of this analysis in the original, states Smith-Singer, was due to standard practice at the time. "When the Environmental Impact Statement was written, it was customary to direct the analysis specifically to a new plant alone." AEP had considered other pollutant sources in their internal investigations, however (FEIS, p340). The newly included analysis showed that while ambient air quality standards were being violated in the area, the contribution to this situation by Mountaineer would be minimal due to the control measures: low-sulfur coal, electrostatic precipitation, and a tall stack.

The latter control measure led to another deficiency in the eyes of USEPA and the US Forest Service. The high degree of dispersion achieved by tall stacks, they contended, contributes to the acid rain problem, which leads to large impacts on soil, water, and their associated habitats. AEP took exception to this criticism, stating that they could not design power plants to combat problems such as this for which EPA had set no standards. They promised to adhere to NSPS standards formulated by EPA, which the utility felt were established considering both local and distant effects.

3. Cultural resources. The Department of the Interior, along with the State Historic Preservation Officer (SHPO) and the PAC, wished to insure that any properties eligible for or listed on the National Register of Historic Places would be protected. In answer to the DEIS's claim that no such sites were present within 50 miles of the plant, the SHPO provided

a list of registered sites within 50 miles and their inventory of all historic sites within 15 miles. They further indicated that none of them would be threatened by the plant. It was also suggested by the Interior Department that more consideration should be given in the EIS to existing and potential recreation sites. AEP had discovered only one site in the immediate area, a marina, which it felt would not be affected in any way. Finally, Interior suggested that an archaeological evaluation of the area, supervised by a professional archaeologist under the direction of the State Archaeologist, be performed. Such a study was undertaken for the DEIS, however, and included a search of State archaeological records (revealing no known sites), interviews with local residents (indicating frequent archaeological finds), a surface survey (uncovering two burial mounds previously reduced by cultivation), and a non-productive test excavation of one mound threatened by construction. Assurances were given that the same care would be used in later phases of construction.

4. Vegetation and Wildlife. Comments in this area 1) disputed contentions that displaced wildlife could relocate and that fish didn't spawn in the main channel of the Ohio River, 2) suggested that an index of the sports value of fish and wildlife and a discussion of the effects of warm water discharges be provided, 3) indicated that commercial fishing on the Ohio River was increasing, 4) debated some of the taxonomy in the DEIS, and 5) in general expressed a feeling that there was a lack of information about ecological impacts. AEP defended their analysis, stating that any of these impacts would be minor.

5. Other areas. Other comments concerned the loss of prime agricultural land, mitigation measures for transmission lines, the use of PCB's, provisions for burning high-sulfur coal (if necessary), peak growth

predictions, and runoff from the coal pile. These were all answered in the FEIS.

Transmission Lines

The WVPSC case over authorizing the construction of the Culloden-Gavin transmission line was by far the most controversial action surrounding the Mountaineer project. In the course of the litigation over this permit, the opponents of the line presented a variety of issues supporting their position. This testimony was given by the intervenors in the case, their expert witnesses, and several independent parties from out of the area who appeared at the hearings on their own accord. AEP's major proposals, the objections to them, and the WVPSC decision in each case are briefly summarized below.

1. Need for the proposed line. The primary reason stated for building the Culloden-Gavin line was "to reinforce the existing transmission system in the area" of the Mountaineer plant. AP presented several computer models showing the effect of various system malfunctions coupled with facilities out of service, conditions which had been experienced in the past. These indicated that the increased load from Mountaineer during such occurrences would cause instabilities and overloads in the existing transmission and generation system. The intervenors disputed AP's forecasts for peak load growth upon which these models were based, contending that overloads would occur very rarely. While the WVPSC criticized AP's failure to analyze the probability of the overload occurences, and found that, although nothing could then be done about it, the location of the Mountaineer plant may have violated an ECAR reliability criteria (avoiding a concentration of generating capacity in one area), it was basically in agreement with AP's analysis of the need for this line and thus felt that

it should be built.

AEP built their case on local system stability requirements, but the intervenors felt that this was not the total reason for a project of this magnitude. Billy Jack Gregg, attorney for the intervenors, found a series of system expansions in an ECAR report to the FPC in 1976. These included the Mountaineer plant, the Culloden-Gavin and Culloden-Wyoming transmission lines, another line to run parallel to these, and further lines from the Wyoming substation in southern West Virginia to Roanoke, Virginia and to a proposed pumped storage reservoir. This later project was originally scheduled for the New River in West Virginia, but was switched to western Virginia when Congress declared the New River to be a Scenic River. Gregg's theory, which he and the intervenors have unsuccessfully attempted to prove, is that the Culloden-Gavin line is just a piece of a system for using the power from the Mountaineer-Gavin-Amos complex during non-peak times to pump these reservoirs full. These large power plants, he believes, can only be operated efficiently if they are constantly at full production, which his theorized system would do. The ultimate goal of the pumped storage reservoirs, Gregg further speculates, is to provide peaking power for sale to the utilities of the rapidly-growing Sun Belt cities of the South.

2. Alternatives to the proposed line. AP presented four alternative routes for the Culloden-Gavin line, as well as another possible routing for the 765KV line and the use of the existing 345KV system. The route it advocated, however, was claimed to be the most environmentally acceptable (The WVPSC later concurred with this finding). The decision by AP was based on an evaluation of a mile-wide corridor surrounding each route, using twelve natural and socio-economic characteristics:

1) Terrain,
2) Hydrology,
3) Soils,
4) Vegetation,
5) Wildlife,
6) Population,
7) Landuse,
8) Transportation,
9) Navigation,
10) Existing utilities,
11) Historic sites, and
12) Scenic and recreation sites.

Also, the Kanawha River crossing, the length of each corridor, and the number of structures in each corridor were considered in AP's evaluation. The intervenors desired to avoid an argument over routing since they recognized that the chosen route was the best environmentally.

3. Right-of-way clearance and maintenance. AP proposed using clear-cutting of all woody-stemmed vegetative growth along the selected right-of-way except at stream and roadway crossings and on upslopes visible from highways. They also wished to use an aerial spraying program to maintain a clear-cut right of way. These practices had always been used on all 40,000 miles of lines in the AEP system, and AP saw no reason not to continue them.

The intervenors, however, organized a large volume of testimony pointing out abuses in AEP's right-of-way maintenance practices in the past, and urged that alternative, less damaging methods be adopted. Clear cutting, they claimed, can increase erosion and sedimentation, and remove many plants desirable as wildlife habitat and food sources. In addition to this, numerous witnesses stated that they had observed personnel aerially spraying lines for AEP violating many of the restrictions placed on this practice. Prohibitions include spraying over open water, pasturelands being grazed, humans and animals, and within a safe distance from homes, gardens, orchards, crops, water and animals. Instead of aerial spraying, the intervenors requested that "selective herbicide" techniques be used, thereby allowing low-growing plants to survive, possibly establishing a stable shrub community requiring little or no maintenance, and retaining a wildlife habitat.

Although AP argued that the WVPSC was not the proper forum for this issue, and that the Commission had earlier approved these practices, the evidence present convinced the WVPSC that it was time for a change. Their order restricted aerial application to areas inaccessible to ground crews and widened the regions around the various areas which are not to be sprayed. Also they required measures to mitigate the environmental effects caused by the construction of these lines, including the elimination of wide-scale clear-cutting.

4. Electrical environmental effects. Five categories of electrical effects were debated; noise, radio and television interference, ozone, shock, and health effects. The first two of these were considered to be "foul weather" problems, since the major impacts occur when moisture enters the electric field surrounding the lines. AP promised, and the WVPSC ordered, that mitigative measures would be provided by the power company if a problem was reported by a neighbor of the line. Ozone, the WVPSC determined, is produced only in small quantities, and would decay rapidly in the environment. The inducement of an electric field in insulated objects near the line can cause a shock if a person comes in contact with the charged object. Stationary objects near the right of way were required to be grounded to prevent this occurrence. The height of the line, it was shown, would minimize a similar problem in mobile objects

passing under the line.

The largest body of testimony in this area concerned the effects on human health of the electric fields surrounding 745KV lines. The intervenors presented evidence which indicated that, at the very least, the possibility of such effects existed. No conclusive tests were found showing just what the dangers were, but the intervenors' position was that even the slightest chance of adverse effects should be addressed. AEP also felt this was potentially an important problem, but in defense of these lines presented studies they had conducted which failed to prove biological harm. They also presented numerous objections from the scientific community to the evidence presented by the intervenors. The WVPSC, while concerned about this matter and endorsing further studies, felt that present evidence did not support the assertion of health effects from these lines.

FINDINGS AND CONCLUSIONS

1) There was very little public participation and no demand for a public forum during the licensing of the Mountaineer Plant.

Mountaineer is unique among the case study plants in that no individual or private interest group made written opposition to the plant. Attending formal public meetings was the only action taken by non-governmental parties interested in the plant. When the project was announced, there were individuals who expressed dissatisfaction or concern about aspects of the plant at these early public meetings, but these concerns were never expressed in a public forum afterwards. Apparently there was, and still is, a growing acceptance of the plant due to the diverse personal economic benefits it provides to members of the community. On the other hand, local complaints about the project were still expressed by some individuals interviewed.

2) In terms of the degree to which public opposition was expressed, the Mountaineer plant and the related Culloden-Gavin transmission line were polar opposites.

There are several possible reasons for this marked difference. One may be the time difference between when these two facilities were considered. Public awareness about energy facilities has increased since 1974. Another factor which may explain the increased public activity over Culloden-Gavin lies in the social and demographic characteristics of those involved. The leading opponents of the transmission line were more affluent, better educated, and sought to be better informed than those affected by the plant, and thus were better able to present their case. Also, it appears that the WVPSC was more receptive and better equipped to handle public comment at the time of the Culloden-Gavin transmission line case.

3) The location of the Mountaineer plant violates suggested ECAR reliability criteria according to statements made by the WVPSC.

ECAR, a utility-sponsored organization which establishes principles and procedures for insuring the reliability of bulk power supply in their region, has suggested that an electric company not locate more than 10 per cent of their generating capacity in one area. The AP plants in the New Haven area, however, constitute a much larger portion than this. In their ruling on the Culloden-Gavin line, the WVPSC recognized that this could very well be concluded, even though they had certificated the plant earlier. Thus for a purely technical reason the site selected may not have been a good alternative.

4) Mountaineer's contribution to the already heavy air pollutant loading in the region surrounding it will be small.

Air quality standards for both particulates and SO_2 were being violated in certain places near Mountaineer when it was permitted. The expected contribution from the new plant would not significantly aggravate this situation, according to the results of the Smith-Singer studies. This is due to the control equipment, the use of low-sulfur coal, and the tall stack. The tall stack height provides for the dispersion of the pollutants over a larger area, but at lower concentrations. Control measures instituted at the Sporn plant and required in the Ohio plants at some future data should relieve the existing air pollution problems.

5) A long history of land purchases adjacent to the Sporn plant gave AP the bulk of the Mountaineer site before the project was made public.

The approach taken by AP in this case was very much different than the land acquisition procedures used by CG&E and DP&L in their respective case study plants. These early land purchases probably would not have occurred had the Sporn plant not be adjacent to the site, however, since power companies often buy available, adjacent, reasonably priced land. It is not easy to see why the land was purchased (according to the deeds recording this purchase) as a tansmission line right of way just a year-and-a-half before plans to construct Mountaineer were announced, however.

6) The Roush's were deterred from continuing the condemnation suit over their land by the costs they believed they would have incurred if they contested AP's appeal.

The Roush's settled for less than they felt their land was worth, after being advised that the extra legal costs of an appeal process would be more than the difference between the price they would receive if the judgment again went against AP, and the price an out-of-court settlement would bring. Roush now questions whether he did receive good advice at the time, however. Even if this advice was correct, it means that a landowner has no rational choice but to accept a price below a fair market value as determined by the court system since he will lose money even if an appeals court rules in his favor. This problem is inherent in any legal proceding, however, and is therefore not restricted to EFS condemnation cases. It does, however, affect public opinion concerning the fairness of the siting process.

7) In the Culloden-Gavin transmission line case, owners of the land required for the right-of-way were not personally informed of the WVPSC proceding.

It would seem that the owners of land in the proposed routing of a transmission line would be entitled to direct notification of any procedings on such a proposal. This was not done in the Culloden-Gavin transmission line case, however, nor is it required under WVPSC regulations. Instead, it was only by accident that these landowners learned of the proposal before actual approval was given. The result of the ultimate intervention action point out the deficiencies of relying on obscure legal notices and chance newspaper coverage for public information purposes. Only through the determined efforts of the intervenors was information on power company abuses related to transmission line maintenance uncovered. It is encouraging, though, to note that the WVPSC did reopen their hearings to give these people a chance to air their concerns and thus improve the proposal.

8) The information presented by the intervenors spurred significant restrictions on AP's right-of-way management program.

The one aspect of the intervenors' case which won the judgment of the WVPSC was the account of past abuses of right-of-way management procedures. As valuable as the safeguards subsequently ordered by the WVPSC were, however, they are viewed by the intervenors as a compromise to their viewpoint that the line was not needed at all. Also, improved management practices are only required on this one line. Efforts are underway now by members of the same group to try to have the state regulatory agency institute these changes statewide.

9) The main point of contention of the intervenors was the basic need for the line, rather than its routing or environmental effects.

This approach was greatly different than that taken by opponents of the Killen-Bath line and those concerned about the location of the line emanating from East Bend. Opponents to Culloden-Gavin attacked the basic motivation for even constructing the line. While AP argued that local stability of its system was in question, the intervenors attempted to prove that the ultimate purpose of this line was to provide off-peak electricity to operate future pumped-storage reservoirs in Virginia, which in turn would provide peaking capacity for the growing cities of the South. This argument was based on AP's own long-range system expansion plans. Enough evidence was presented to the WVPSC on the expected stability problems, however, that they ruled the line to be essential.

10) Based on their experience in this case, the intervenors hold the view that the WVPSC does not have the manpower nor the jurisdiction to conduct a probing study of the need for energy facilities.

When they first entered the case, the intervenors felt that they could present their evidence to the WVPSC and have them study in-depth the long-range implications of AP's expansions. Due to the fact that the WVPSC staff included only two engineers (one electrical, and one civil for water utility facilities), and that the multi-state AEP corporate system is the ultimate source of long-range plans, the intervenors found that the state regulators could not accomplish the task that they (the intervenors) had expected. Much more analysis had to be conducted by the citizen's group itself than had been anticipated. Since citizen groups do not have the expertise contained in a large corporation such as AEP, and much of the necessary data for analysis of need comes from the utility, such groups are hard pressed to challenge utility actions.

It happened that the citizen's group in this case had much more expertise represented than could be expected among other groups of residents in the path of a transmission line. It is very important, therefore, that Public Service Commissions have adequate staff, expert in the determination of need for both power plants and transmission lines. It is equally important that PSC staffs are able to work with the utility and have access to any of their relevant data to avoid the need for time consuming replicate studies. The public must be kept abreast of these activities in order to insure that their concerns are being adequately looked out for.

11) Debate over the proper method of evaluating Mountaineer's impact on the regional air quality delayed the issuance of the DA permit.

Due to the limited presentation of air quality impacts in the DEIS, USEPA had reservations about whether emissions from Mountaineer would cause a violation of air quality standards. It was required that AP include the other nearby pollutant sources in their model. Even after this was done, however, USEPA questioned the results and the assumptions used to obtain these results. A separate debate concerned the effect the construction slowdown would have on the applicability of PSD standards. Changing regulations coupled with the stalled construction program led to repeated inquires by USEPA into the project's status. In their role as the lead agency, the COE required that the concerns of USEPA be answered. Even though this led to a year-and-a-half gap between the DEIS and FEIS, and another four month wait thereafter before the DA permit was issued, AP's construction schedule was not significantly delayed in this case since estimates of the need for power were reduced slightly during this period. This reduction was the result of a reduction in the growth rate for electricity demand. In other situations (where the need for power is urgent), such regulatory delays could be detrimental to the power network.

12) Intervention in the Culloden-Gavin case was achieved at a low monetary cost.

Due to the numerous expert witnesses who volunteered their time, and the legal and engineering backgrounds of the intervenors themselves, a comprehensive, thorough, and somewhat successful attack on AP's proposal was achieved quite cheaply. It was estimated that the total financial commitment of the intervenors was $1300. In general, however, it would appear that a situation such as this, where opponents had a degree of expertise and concern allowing them to wage a comprehensive series of rebuttals to each aspect of the project, would be rare. The more common case, which was intentionally and strictly avoided in this situation, would be for intervenors to debate not if a line should be built, but if it could be built somewhere else.

ABBREVIATIONS USED: MOUNTAINEER CASE STUDY

AEP	American Electric Power Company, large electric utility holding company headquartered in New York City;
AP	Appalachian Power Company, subsidiary of AEP responsible for licensing and construction of the Mountaineer power plant;
CEQ	Council on Environmental Quality, responsible for ultimately receiving the DEIS and FEIS;
COE	Corps of Engineers, Huntington District, the lead agency for preparing the EIS and determining whether to issue the DA Permit;
DA	Department of the Army, whose permit is required for constuction of structures in navigable waterways;
ECAR	East Central Reliability Council
EIS	Environmental Impact Statement, where DEIS is Draft EIS, FEIS is Final EIS;
FPC	Federal Power Commission;
kV	Kilovolt
MW	Megawatt;
NEPA	National Environmental Policy Act of 1970;
NPDES	National Pollutant Discharge Elimination System, which sets effluent limitations on plant wastewater streams;
NSPS	New Source Performance Standards, which set effluent limitations on the air waste streams;
OPC	Ohio Power Company, subsidiary of AEP which owns or jointly owns power plants in the vicinity of the Mountaineer plant;
PAC	The President's Advisory Council on Historic Preservation, the Federal equivalent of the SHPO in West Virginia;
PSD	Prevention of Significant Deterioration, which limits the amount of air pollutants any one source can contribute;
SHPO	State Historic Preservation Officer, a West Virginia state agency;
USEPA	U.S. Environmental Protection Agency, Region III, Philadelphia, responsible for NPDES review and coordination on the DEIS and FEIS;

USF&WS	U.S. Fish and Wildlife Service, Department of the Interior; responsible for coordination on the EIS;
WVAPCC	West Virginia Air Pollution Control Commission, issuing agency of the Permit to Construct an air pollutant source, whereunder review is made of NSPS and ambient air quality effects;
WVDNR	West Virginia Department of Natural Resources, responsible for the Permit to Construct wastewater treatment facilities; and
WVPSC	West Virginia Public Service Commission, responsible for the Certificate of Convenience and Necessity for power plants and transmission lines.